Ministry of Forests

Ministry of Sustainable Resource Management

Ministry of Water, Land and Air Protection

RESOURCE MANAGEMENT PLAN

FOR THE

KOOTENAY BOUNDARY REGION

2002 - 2006

BRITISH COLUMBIA

File: 22175-01

September 30, 2001

Rob Gay, Regional Director
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Dear Rob Gay:

We, the undersigned, are pleased to submit the Kootenay – Boundary Resource Management Plan for your consideration. The multi-year services agreement between Forest Renewal BC (FRBC) and the Ministries of Forests (MOF) and Environment, Lands and Parks (MELP) required the establishment of resource management plans (RMP). This is the third year that the ministries have worked together in a collaborative manner to develop and prepare the RMP submission.

The ministries are mandated by legislation to undertake planning functions related to the management of Crown forest land. This RMP, however, as opposed to the previous two, is based solely upon FRBC's three strategic objectives of Sustainable Harvests, Enhancing Environmental Values and Strengthening Sustainable Forest Management.

The RMP is a reflection of a co-operative effort between the ministries and major stakeholders and was guided by multi disciplinary steering committees. The plan has been prepared based upon scientific, biological and/or physical needs of the forested land base as guided by FRBC investment performance measures and targets. Consistent with previous submissions, the RMP has only addressed priorities and made investment recommendations within the strategic objective areas and not between them.

The development of the RMP occurred during a period of change and uncertainty, however, we believe that it provides a sound foundation for future strategic planning initiatives and the preparation of operational plans for 2002/03.

If you have any specific questions, please contact Bernie Peschke, Forest Sector Initiatives Officer at MOF 354-6271 or Kathy Eichenberger, Resource Information and Inventory Manager at MSRM 354-6349.

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Yours truly,

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1.0 INTRODUCTION

The Resource Management Plan (RMP) for the Kootenay Boundary Region (2002-06) was commenced by the Ministry of Forests (MOF) and Ministry of Environment, Lands and Parks (MELP) prior to the establishment of the Ministry of Sustainable Resource Management (MSRM) and Ministry of Water, Land and Air Protection (MWLAP). The ministries are mandated by legislation to undertake planning functions related to the management of Crown forest land. The ministry executives have directed ministry staff to implement resource management planning to identify forest resource management needs and priorities.
As part of the Services Agreement with Forest Renewal BC (FRBC), the ministries will "recommend conservation and stewardship investment opportunities in support of Forest Renewal's Strategic Objectives". These recommended opportunities are a product of the Resource Management Plan.

2.0 PURPOSE

The purpose of the RMP is to:

- Identify MOF, MSRM and MWLAP forest management resource objectives and priorities;
- Recommend investment opportunities in support of FRBC strategic objectives.

The RMP is a compendium of all resource management objectives and priorities, determined by the MOF, MSRM, MWLAP, forest licensees, Tree Farm Licence (TFL) holders and other stakeholders that provide the basis for funding agency investment decisions. The ministry RMP is directed at linking resource management objectives from higher level planning to "on the ground" accomplishments. The RMP recommendations are anticipated to form the core component of the FRBC Forest and Environment Investment Plan (FEIP). The FEIP is a component of FRBC's overall Regional Investment Plan (RIP) which will be for approval. FRBC may then proceed to establish which proponents will deliver the approved priority projects, and set multi-year and annual investment and employment allocations.

3.0 PROCESS AND PROCEDURES

The RMP development was lead by MOF/MELP in cooperation with licensees and other directly affected stakeholders. For the FRBC strategic objectives of Sustainable Harvest (SH), Enhancing Environmental Values (EEV) and Strengthening Sustainable Forest Management (SSFM) steering or planning committees were established (Appendix 1) to guide the ministries in the RMP development, in addition to providing feedback and recommendations to FRBC. The FRBC eligible activity priorities, ranking and final recommendations were based upon the FRBC strategic objectives and their key targets and performance measures.

The resource planning for SH was conducted at the Timber Supply Area (TSA) and Tree Farm License (TFL) management unit level, whereas, the EEV and SSFM planning was conducted at the FRBC regional level.

RMP development was guided by the "Guidelines for the Development of Resource Management Plans for 2002/03" (http://www.for.gov.bc.ca/cpp/rmp/guidelines/200203/). From this base, regional guidelines, as guided by the FRBC ground rules checklist (Appendix 2) were developed, as deemed necessary, within the terms of reference of the various steering committees.

4.0 RESOURCE AND INVESTMENT PRINCIPLES

Planning for ministries program activities and FRBC land based strategic objectives are consistent with the purposes and functions of the MOF. These include:

- encouraging maximum productivity of the forest and range resources in BC;
- managing, protecting and conserving the forest and range resources of the government, having regard to the immediate and long-term economic and social benefits they may confer on BC;
- planning the use of forest and range resources of the government, so that the production of timber and forage, the harvesting of timber, the grazing of livestock and resource values are co-ordinated and integrated, in consultation and co-operation with other ministries and agencies of the government and with the private sector;
- encouraging a vigorous, efficient and world competitive timber processing industry in BC; and
- asserting the financial interest of the government in its forest and range resources in systematic and equitable manner.

Planning was also consistent with the purposes and functions of the *Ministry of Environment Act*. These include:

- to encourage and maintain an optimum quality environment through specific objectives for the management and protection of land, water, air and living resources of BC;
- to undertake inventories and to plan for and assist in planning , as required, for the effective management, protection and conservation of all water, land, air plant life and animal life; and
- to manage, protect and conserve all water, land, air, plant life and animal life, having regard to the economic and social benefits they may confer on BC.

The above stated ministry purposes and functions are in keeping with, and not at odds with those of the new ministries of MSRM and MWLAP.

In addition and/or more specifically, resource management plan investment recommendations:

- are consistent with present legislation, policies and the Kootenay-Boundary Land Use Plan;
- address continuing program commitments and links to other plans and agreements;
- maintain current and reliable inventories and other components of the corporate data base which are the basis for land based investment decisions;
- directed towards those conditions, stands and treatments which are cost effective and minimize risk;
- ensure timber supply implications are considered and maximized without detriment to other resource values; and
- consider non-timber resource values and stakeholders.

FRBC investment principles have been established to guide ministry planning within their Environment and Land and Resources investment areas. These include:

- Forest Renewal's highest priority for distribution of investment funds is allocation to business areas, programs and activities based on the potential contribution toward achieving Corporate Strategic Objectives at reasonable cost;
- the proportion of total funding flowing to investments managed through partnership arrangements is to be maintained at current levels;
- the RMP and FEIP planning processes must be transparent;
- planning process outputs will be determined as program level investment strategies;
- the ministries will ensure that individual land-based investments can be explained and defended in terms of their potential for return on investment and value-for-dollar;
- the total annual employment created through investments is expected to be proportional to that created in previous years.

5.0 PROGRAM STRATEGIC OBJECTIVES

FRBC has provided the following strategic objectives and investment strategies by program area:

Sustainable Harvest (SH)
Focus on long-term investments to increase the volume, value and health of second-growth forests.

Enhance Environmental Values (EEV)
Focus on restoration and protection of fish habitat and domestic water supplies in priority watersheds, which have been damaged or are threatened by pre-Code forest development.

Strengthen Sustainable Forest Management (SSFM) (Enhance Knowledge)
Focus on increasing knowledge, techniques and innovations to strategically manage forest according to principles of sustainable forest management.

Habitat Enhancement (HE)
To identify habitat enhancement projects that can be implemented concurrently with Sustainable Harvest silviculture activities.

6.0 SUSTAINABLE HARVEST

6.1 Introduction

The Sustainable Harvest component of the RMP is based upon individual management unit (TSA/TFL) submissions which were guided by their strategic silviculture investment priorities as well as FRBC performance measures and targets. FRBC provided each management unit with a base funding level. The Steering Committee, comprised of MOF, MELP and industry, guided the development process and determined the final investment recommendations.

6.2 Priority Identification and Ranking

Strategic silviculture planning workshops (Type I) have been held for each of the Nelson Forest Region's TSAs and TFLs. The outcome silviculture investment strategies form the basis for the RMP SH recommendations.

The strategic silviculture workshops have been based upon the provincial standard originally developed by LP Atherton and Associates and Cortex Consultants Ltd. to identify incremental silviculture priorities. The process used in the Nelson Forest Region expanded the original scope to also include basic silviculture activities (non FRBC eligible) as well wildlife habitat issues with the input from MELP staff. Participation at the workshops included MOF and licensees with MELP and FRBC staff attending, when available.

Management unit silviculture strategy report summaries may be found in Appendix 3.

The future direction for the Nelson Forest Region is to conduct detailed analysis and modelling (Type II) of different levels of silviculture and other management practices on wood flow, wood quality and habitat supply. This detailed analysis should be conducted for each management unit upon completion of their TSR. The analysis would guide the direction of the silviculture program until the next TSR or when major management objective changes occur. This process should also allow for a comparative analysis between management unit priorities.

6.3 Activity Needs and Allocation Recommendation Process

The individual management units were provided funding targets by FRBC upon which to base their RMP submissions. Investment recommendations were to be based upon the completed silviculture investment strategies, SH strategic objective guidelines and completed in co-operation with major licensees. Submissions were summarized and submitted to the regional Sustainable Harvest Steering Committee for review and consideration in making investment recommendations for 2002/03.

The following are the principles used by the management units and Steering Committee to prepare the RMP investment recommendations.

FRBC Strategic Objective Targets and Principles:

- Increase available timber for future harvest by 1.5M m^3. Priority given to short term benefits.
- Increase the economic value of timber on all enhanced forestry treatment areas by 5 to30%. Regional target set by FRBC is 5 %. The basis for achievement of this target is still to be determined.
- 2150 hectares (ha) added back to the commercial forest base through surveys and planting.
- 6250 ha of previously planted land will be brought to free-growing status. (primarily brushing on commenced upon backlog NSR prescriptions).
- The focus of the process is on positive changes for the planning unit as a whole.
- Investment decisions are to be guided by stewardship plans and priorities for each management unit.
- Planned activities must have reasonable cost estimates within regionally relevant cost guidelines.
- Any additional funding investment decisions will be guided by investment principles established by the Steering Committee and achievement of FRBC's strategic investment targets.

Steering Committee Principles and Process:

- Management units were provided with an assured base funding level as a percentage, based upon historic allocations, of the regional target funding level for SH. In addition, management units were to identify any outstanding unfunded priority needs. The steering committee then made investment recommendations up to the targeted regional investment level based upon the following two priorities.

- The first priority is to fully fund entrenched costs associated with commenced-upon backlog prescriptions and any multi-year project contractual commitments which require ongoing funding to produce a useable product (e.g., a silviculture study spanning 2 years but not to complete spacing which may be curtailed by snow.

- Second priority is to address achievement of regional FRBC performance measure targets and the provincial SH target of by March 2002, for backlog sites:
  a) Accurately identify and categorize all stands as NSR, SR or NP; and
  b) Put under prescription all NSR sites that will be treated to bring them to SR.

Steering Committee Investment Recommendations:

Minimum investment recommendations for 2002/03, by program, have been summarized for the region in the following table.

Sustainable Harvest Funding Recommendation Summary for 2001/02

Program	TSA ($)	TFL ($)	Total ($)
Backlog	2,475,451	918,325	3,393,776
Forest Health Enhancement	24,800	30,540	55,340
Stand Tending	822,420	357,925	1,180,345
Forest Restoration	258,750	30,100	288,850
Total	**3,581,421**	**1,336,890**	**4,918,311**

Detailed activity summaries and individual management unit recommendations may be found in Appendix 3.

7.0 ENHANCING ENVIRONMENTAL VALUES

7.1 Introduction

In 1999, FRBC refocused the Watershed Restoration Program in view of achieving their strategic objective of Enhancing Environmental Values (EEV). Investment by FRBC are now solely targeted to restoring and protecting fish habitat and domestic water supplies in priority watersheds, which have been damaged or are threatened by pre-Code forest development. All components of watershed restoration in key watersheds, e.g., upslope, riparian, and stream work required to restore or protect fish habitat and water supplies will be integrated in a holistic manner in view of achieving this goal.

The performance measures related to the new program vision, goals and strategies are to completely restore 20% of the highest priority watersheds in each region which have been damaged or seriously threatened by past forest development activities, and to implement effective monitoring and evaluation that focuses on restoration goals of the key watersheds.

As in the previous two (2) years, an EEV regional steering committee comprised of Industry, FRBC, MOF and MELP was formed to guide the ministries in the development of the RMP. The RMP exercise was conducted primarily at a regional level with input from MOF, MELP, and industry at the district level. RMP planning process followed the EEV RMP provincial guidelines "RMP - Guidelines for the Enhancing Environmental Values Component".

Other considerations were to:

- identify key watersheds in relation to specific criteria at a regional level;
- utilize existing assessments and knowledge;
- focus on 'at risk' but functioning watersheds;
- focus on watersheds where past forest development is the main problem (i.e., non-forestry land uses are not significant problems);
- focus on watersheds with a good chance of restoration success;
- use higher level plans to guide the selection; and
- limit the criteria used to establish watershed priorities.

The intent of the RMP will be not only to guide future FRBC investment, but also to serve as an aid for other agency and community restoration efforts.

7.2 Process

The process consisted of a series of steps as follows:

Step 1: Identification of fish species and or special stocks of concern in each region.
MELP fisheries staff identified fish species and stocks of concerns, focusing primarily on threatened, endangered and vulnerable stocks. Locations of species and stocks of concern were provided along with a rationale for their identification. This information is presented in Appendix 4 a) in database report "Fish Species/Stocks of Concern in the Kootenay Region".

Step 2: Creation of a base map showing watershed units for the region.
RMP guidelines suggested a workable size of watershed unit for efficient analysis and prioritization would range from 30 000 to 75 000 ha. This direction was applied by and large for grouping watersheds and/or selecting 3rd and 4th order watershed as "watershed units". An effort was made to group watersheds in a logical and consistent manner based on similarity of geophysical attributes and compatibility of values. Each watershed unit was assigned a GIS tag for easy identification and database manipulation. The delineation of watershed units can be seen on the GIS map in Appendix 4 b). There are a total of 287 watershed units in this region.

Step 3: Selection of watersheds that are important producers or conservation streams for the identified target species and or stocks and identification of consumptive water supply watersheds.
District MOF and MELP staff provided information on fisheries and consumptive water use for each watershed unit.

Step 4: Ranking by category, (e.g., Very High, High, Medium) the list of domestic watersheds and target fish-bearing watersheds.

A ranking scheme was adopted to prioritize, as a first cut, all watershed units. Fisheries values were ranked from moderate, where no species and stocks of concern were present, to very high -1 where threatened species and stocks were identified and which contributed to a significant fishery. Similarly, consumptive water use was ranked from very high for FPC community watersheds, to low where there was no consumptive use. The full ranking scheme for fish and water use is found in Appendix 4 c) in database reports "Water Ranking Descriptions" and "Fish Ranking Descriptions".

Step 5: Estimate of the status of impact and potential for restoration for each of the ranked watersheds.

District MOF and MELP staff determined the status of impact of each watershed unit based on the following categories:

Category I - Watersheds that have known impacts from past pre-Code forestry that will potentially benefit from restoration activities
Category II – Watersheds with significant impacts from other land use (or private land development) that will potentially benefit from restoration activities
Category III – Watersheds with minimal or no forestry-related impairment of fish habitat or water quality
Category IV – Watersheds known to be impacted to such an extent that restoration effort is unlikely to be successful
Category V – Watersheds with insufficient data to make a determination
Category VI – Watersheds with significant restoration investment

A summary of the status of watershed units in the region is found in Appendix 4 d) "Table 2 – Regional Watershed Unit Summary".

Step 6: Compilation and Analysis of information.
All information compiled from the above 5 steps were entered into the database. The outcome is presented "EEV-RMP Mandatory Data Report" which can be obtained from MELP and accessed through their FTP web site.

Step 7: Selection of Target Watershed Units
In order to meet the performance measure identified by FRBC for the Enhancing Environmental Values" strategic objective, 20 % of the highest priority watersheds were selected as funding priorities. These watersheds were primarily selected by the multi-year agreement holders based on their review of high priority watersheds within their operating area. 28 watershed units are recommended and are listed in Appendix 4 d) Table 3 - "Priority Status Summary of all Regional Watershed Units". The intent was to provide flexibility to FRBC and industry in identifying watersheds which also met their needs, be they social, economic, operational, equitable or others, which may be different than those enunciated in the strategic objective.

Step 8: Preliminary
Licensees were asked to provide preliminary restoration plans for target watersheds within their chart area to give an indication of the approximate level of funding over the next 3 years for assessment, prescriptions, works and monitoring. This information may then be compiled to allow FRBC and the ministries to ascertain whether the performance measure for the EEV strategic objective will likely be met with the current levels of funding. A summary of this information is found in Appendix 4 d) " Table 4: Project Status Summary for Watershed Units". It should be noted that most interim restoration plans require refinement to ensure that all aspects of restoration are captured in order for a

watershed to be completed. Licensees are in the process of completing comprehensive watershed restoration plans. The targeted completion date for the restoration plans is November 1, 2001.

8.0 STRENGTHENING SUSTAINABLE FOREST MANAGEMENT

8.1 Introduction

As per the previous 2 years, a regional planning team was again established in June 2001 to develop the Strengthening Sustainable Forest Management (SSFM) component of the Resource Management Plan for the Kootenay-Boundary region. The planning team was comprised of representatives from Ministry of Forests, Ministry of Environment, Lands and Parks, Kootenay/Boundary Inter-Agency Management Committee, Southern Interior Forest Extension & Research Program, FRBC, Arrow Forest District Innovative Forest Practices Agreement, the environmental community and forest industry. A consultant was hired to facilitate the process and report results. The participants of the Kootenay/Boundary Regional SSFM Planning Team are listed in Appendix 1.

The overall SSFM process was guided by the Resource Management Plan for Strengthening Sustainable Forest Management (SSFM) Guidelines. Forest Renewal's SSFM strategic objective is specifically focused on increasing ***knowledge***, ***techniques*** and ***innovations*** to strategically manage forest resources according to principles of sustainable forest management. The focus is on higher level strategic decisions and planning processes. It also reflects an increased emphasis on funding of activities/strategies to enhance the use of existing information. Inventory will continue to be eligible for funding, however, the inventory will be required to address strategic resource plans and processes (*e.g.*, regional, subregional and forest and landscape level plans and decisions including timber supply reviews).

8.2 Process

The overall process used to identify the key regional SSFM issues essentially followed the provincial planning model and included:

Phase 1: Establishment a ***Regional Planning Team*** and hiring of a ***project co-ordinator***.

The technical and management level representation on the Kootenay-Boundary Regional Planning Team combined the regional and management level planning teams identified in the provincial process. This was considered an effective and efficient approach to providing both the strategic direction and technical support needed for completion of the overall SSFM planning process.

Phase 2: Identification of ***key regional SSFM issues***.

The identification and/or confirmation of key strategic regional issues is based upon last years RMP's listing of key issues and a review of other SSFM funding issues/activities. A table summarizing the historic16 regional issues identified, their priority ranking and the estimated funds allocated to them in this years multi-year agreement workplans was circulated to the various stakeholder groups for review. In addition, the listing included an additional 12 funded activities (not ranked last year) and an opportunity to identify other issued to be considered. The feedback received supported the continued high ranking of the following 6 issues:

- Spatial analysis
- Landscape unit planning for delineation of old and mature
- Structural attributes for old and mature forests
- Mountain caribou
- Ungulate winter range
- Water quality, quantity and timing of flows

Of the other issues identified, the following 4 have been elevated and targeted specifically for regional attention based upon committee discussions and feedback received.

- Grizzly bear avalanche track mapping
- Fisheries and species specific information
- TSR and unstable terrain
- Site series mapping and PEM/TEM

Phase 3: Development of ***knowledge strategies*** for each key regional SSFM issue.

The regional planning team identified potential strategies and activities, including specific projects, for each key SSFM strategic issue identified in Phase 2. The resultant information was collated and reported on utilizing the standard provincial template format. Template 1 provides the format for the documentation of the key regional issues. Template 2 provides specific guidance on the documentation requirements for each knowledge strategy tied to a specific issue. Template 3 identifies and captures the proposed activities that are consistent with the knowledge strategy identified in template 2. The issue templates are contained in Appendix 5 a)

Table 1 provides a listing of the 10 key regional issues and associated strategies/activities for 2002/03. There is no order of priority associated with the issue numbering as they are intended to be for reference or tracking purposes only.

Table 1: Key SSFM Regional Issues *(in no order of priority)*

Regional SSFM Issue #	Issue Title	Strategy/ Activity #	Strategy/Activity Title
1.0	**Spatial Analysis**	1.1	spatial analysis
2.0	**Old Growth**	2.1	OGMA delineation
		2.2	Maintaining sufficient old growth
3.0	**Old Growth Structural Attributes**	3.1	structural attributes of old forest refugia
		3.2	ancient forest dependent species
		3.3	structural attributes at risk in moderate intensity fire regimes
		3.4	structural attributes of old forest in NDT4
4.0	**Caribou**	4.1	inventory population and movement in select areas
		4.2	inventory/monitor caribou populations
		4.3	refine caribou guidelines, mapping and extension over time
5.0	**Ungulate Winter Range (East Kootenays)**	5.1 (E)	field verification of preliminary PEM/TEM and preliminary habitat ratings
		5.2 (E)	ungulate winter range ecosystem-based (PEM/TEM) habitat mapping
		5.3 (E)	UWR guideline refinement
	Ungulate Winter Range (West Kootenays)	5.4 (W)	radio telemetry and winter track count surveys
		5.5 (W)	draft UWR mapping
		5.6 (W)	UWR map review and guideline completion
		5.7 (W)	post mapping gap analysis
		5.8 (W)	final data collection and UWR model
		5.9 (W)	final UWR mapping completion
6.0	**Water Quality and Quantity**	6.1	water quality index tool
		6.2	rapid bio-assessment procedure
		6.3	trend and impact monitoring
		6.4	gap analysis and data collection for HLP implementation
		6.5	water sampling tool kit
7.0	**Ecosystem Mapping**	7.1	large scale BEC mapping
		7.2	predictive ecosystem mapping (PEM)
		7.3	improve weak BEC site series classifications
		7.4	improve site productivity estimations (SIBEC)
8.0	**Fish**	8.1	fish reconnaissance and habitat mapping
		8.2	fish and fish habitat modeling
		8.3	species and stock specific fisheries inventory
9.0	**TSR Inputs for Unstable Terrain**	9.1	improve unstable terrain mapping for TSR
10.0	**Grizzly bear Avalanche Mapping and Classification**	10.1	mapping and classification of avalanche chutes

Phase 4: ***Recommendations for regional investments*** for SSFM.

The committee reviewed and ranked the specific SSFM strategies/activities associated with each of the 10 key regional SSFM issues according to the following evaluation criteria:

- urgency (timeframes around higher level plan and timber supply review)
- timeline required to complete
- benefits (HLP, TSR, strategic planning)
- probability of success (timing, complexity, expertise required, obstacles or alternative approaches)
- issue well defined (strategies/activities/performance indicators/targets/milestones)

Each specific activity/strategy was ranked, in order of recommended funding priority, in Table 2 below. The issue activity number provides a reference for each activity/strategy

Table 2: Key SSFM Activities/Strategies (*ranked in order of funding priority*)

Issue Activity #	Title	Cost 2002/03	Total Cost to Complete (2002/03+)
2.1	old growth delineation	$100,000	$170,000
3.1	structural attributes of old fire refugia	50,000	60,000
5.1-5.3	ungulate winter range mapping (East Kootenays)	100,000	100000
1.1	spatial analysis	285,000	570,000
3.2	ancient forest dependent species	25,000	25000
6.2	rapid bio-assessment procedure	40,000	40000
7.1	large scale BEC	50,000	50000
7.2	PEM	175,000	550,000
7.3	BEC site series classifications	10,000	70,000
4.1-4.3	Caribou	100,000	200,000
10.1	grizzly bear avalanche mapping and classification	60,000	60000
5.4-5.9	ungulate winter range mapping (West Kootenays)	175,000	185,000
3.3	old forest structural attributes at risk in moderate intensity fire regimes	25,000	50,000
6.1	water quality index tool	100,000	150,000
6.5	water sampling tool kit	40,000	40000
8.2	fish and fish habitat modeling	50,000	350,000
7.4	SIBEC	75,000	225,000
6.3	water – trend and impact monitoring	300,000	1,500,000
6.4	water – gap analysis and data collection for HLP implementation	50,000	200,000
8.1	fish reconnaissance and habitat inventory	500,000	1,300,000
9.1	TSR inputs for unstable terrain	40,000	120,000
3.4	structural attributes of old forests in NDT4	5,000	85,000
8.3	species and stock specific fish inventory	150,000	525,000
2.2	maintaining sufficient old forest	75,000	165,000

Additional regional investment summary background and recommendations may be found in Appendix 5 b).

9.0 HABITAT ENHANCEMENT

Currently there are no quantifiable objectives with measurable targets for the habitat enhancement component of the sustainable harvest strategic objective. The planning for habitat supply and biodiversity is being incorporated into proposed future Type III analysis and modeling. The eventual goal is to have measurable targets with quantifiable objectives. In the absence of specific goals management units may, and have, identified silvicultural treatments that target specific resource objectives of habitat supply or enhancement.

10.0 RESEARCH

The FRBC research program mission is "to add to the knowledge base essential to build a healthier, more productive forest sector and to sustain the full range of resources and values derived from the forest". Research investments, if any, made within the RMP process are expected to be regionally and issue specific. Research activities identified within the RMP process should be designed and implemented with the same analytical rigour that applies to all research endeavors.

Appendix 1 - RMP Consultation

The RMP development process is a collaborative one lead by Forest Renewal BC and the Ministries of Forests (MoF), Sustainable Resource Mangement (SRM) and Water, Land and Air Protection (WLAP). The final RMP is a reflection of the co-operative effort between the ministries and major stakeholders. Stakeholder involvement was achieved throught the establishment of multi disciplinary steering committees (SC) to guide development of the Sustainable Harvest (SH), Enhancing Environmental Values (EEV) and Strengthening Sustainable Forest Management (SSFM) components of the RMP. In addition, major stakeholders were kept informed/involved through the circulation of SC meeting minutes. Co-operation and consultation between the ministries and major stakeholders will continue in order fine tune RMP content and facilitate the recommendations implementation.

Steering Committee memberships are as follows:

SH

- B. Peschke (MoF – Chair)
- D. Underwood (SFP)
- L. Peitzsche (MoF)
- R. Allen (FRBC)
- M. Belcher (Tembec)
- S. Crowley (MELP)

EEV

- K. Eichenberger (MELP- Chair)
- H. Tepper (MELP)
- T. Anderson (MELP)
- B. Peschke (MoF)
- D. Bouzane (FRBC)
- M. Belcher (Tembec)
- D. Wunder (Atco)
- M.L. Nesbit (MoF)

SSFM

- D. Hamilton (Facilitator)
- B. Peschke (MoF)
- K. Eichenberger (MELP)
- M. Geisler (MoF)
- J. Pollack (MoF)
- D. Bouzane (FRBC)
- M. Bakelaar (IAMC)
- M. Pascuzzo (Huscroft)
- G. Bekker (P&T)
- J. Beerbower (NGO)
- D. Gayton (SIFERP)
- D. Brown (Tembec)

Appendix 2 - Checklists for Resource Management Plan (RMP) Ground Rules

The following checklist should be used to confirm that RMP ground rules contain the provincially required elements:

- ☐ Roles and responsibilities
- ☐ Preliminary budget by management unit and Strategic Objective
- ☐ Provincial and regional performance measures
- ☐ RMP format and content
- ☐ Principles and expectations for partner involvement
- ☐ Requirements for reporting on partner involvement
- ☐ Terms of reference for planning teams for each Strategic Objective: roles and responsibilities (including duties of the chair, such as overall team coordination, setting meeting times and agendas, ensuring documentation of team meetings and partner involvement activities); who will be asked for input and feedback; team composition; and decision making method.

The following checklist identifies optional ground rules elements:

- ☐ Purpose and objectives
- ☐ Geographic units for sub-regional RMPs
- ☐ Milestone dates
- ☐ Follow-up steps (investment planning, work plan preparation, and annual review)
- ☐ Key contacts (for the three agencies, by Strategic Objective)
- ☐ Conflict resolution guidelines
- ☐ Signatures (representatives of the three agencies).

Provincial guidelines for development of RMP ground rules, a set of ten principles for partner involvement in planning, and a set of definitions are attached.

Guidelines for RMP Ground Rules

Purpose and Objectives

The purpose of ground rules is to clearly define regional commitments of Forest Renewal BC, Ministry of Forests, and Ministry of Environment, Lands and Parks in the development of Resource Management Plans (RMPs). The ground rules are applicable to RMP components which deal with three Forest Renewal BC Strategic Objectives (sustainable harvest, enhance environmental values, and strengthen sustainable forest management).

Ground rules are intended to:

- Confirm preliminary Forest Renewal budget allocations;
- Confirm provincial and regional performance measures;
- Confirm regional specifics for RMP format, content, process, and time lines, within the overall framework of provincial RMP guidelines;
- Guide partner involvement in the RMP process;
- Guide communication and conflict resolution in the RMP process.

Background

The Province of BC produces RMPs through co-operation among Forest Renewal BC (FRBC), Ministry of Forests (MoF) and Ministry of Environment, Lands and Parks (MELP). FRBC funds MoF and MELP for development of the RMP components within FRBC's mandate. The inconsistency of RMP ground rules used in 1999-2000 created challenges for the ministries and agreement holders involved in multiple FRBC regions.

Roles and Responsibilities

Ground rules should contain a statement on roles and responsibilities, such as the following: "MoF and MELP, as stewardship agencies, are responsible for identification and prioritization of resource management investment opportunities. This includes involvement of agreement holders and others with relevant technical expertise. FRBC, as an investment agency, is responsible for selection of investments and for ensuring overall accountability of these investments. This includes informing interested parties (industry, labour, First Nations, environment, community, and government organizations) about the overall process and opportunities for involvement."

Preliminary Budget Allocations

Ground rules should show preliminary budget allocations, by Strategic Objective and by management unit (where applicable). These figures will be used to guide resource management planning. Ideally, RMPs will identify priority investment opportunities which represent approximately 120% to 130% of allocations.

Provincial and Regional Performance Measures

Ground rules should identify provincial and regional performance measures for each Strategic Objective.

Geographic Units

Ground rules may specify geographic units for the various plans that together will comprise the regional RMP.

RMP Format and Content

Ground rules should confirm consistency with the most current version of provincial RMP guidelines. In addition, ground rules may specify regionally specific format/content requirements.

Principles and Expectations for Partner Involvement

Ground rules should confirm consistency with a set of principles for partner involvement in planning (see attached provincial version). Specific expectations for partner involvement should be identified in terms of reference for regional planning teams.

Ground rules may confirm FRBC commitment to inform a broader range of interested parties regarding the overall planning and evaluation process, how to get more information, and opportunities for involvement (input on investment planning in October and annual review in January-February).

Ground rules may state that FRBC will coordinate an annual review, including invitation to government, First Nations, community, industry, labour, and environmental organizations to review key documents and to provide feedback on the overall process and results (making it clear that finalized RMPs and investment plans will not be revised). Ground rules may further state that ministries will participate in the review process as resource people.

Reporting on Partner Involvement

Ground rules should state that RMPs will include appendices indicating names and organizations of people on planning teams, people invited to provide input and/or feedback, and people who actually did provide input/feedback (by Strategic Objective). Ground rules should also state that ministries will retain all documentation of partner involvement, such as meeting minutes, submissions of input and feedback received, notes on comments received by phone, etc. The period that this material to be retained should also be specified (e.g. for two years).

Planning Teams

Ground rules should identify planning teams for each strategic objective, and should include terms of reference which identify roles and responsibilities, composition, and method of decision making for each planning team. Terms of reference should specify what parties will be invited to provide input and/or feedback and who will provide overall team coordination, set meeting times and agendas, and ensure documentation of team meetings and partner involvement activities. To establish a decision making method, terms of reference may state that consensus will be used, and that in the event a consensus cannot be achieved, decisions will be made in the manner selected by the Chair (e.g., majority vote).

Ground rules may identify an overall regional RMP steering committee and terms of reference for that body.

Milestone Dates

Ground rules may specify completion dates for milestones in the RMP process, including collection of input, preparation of first draft, collection of feedback, and preparation of final draft.

Follow-up Steps

Ground rules may specify the timing and roles and responsibilities in follow-up steps: investment planning, work plan development, and annual process review.

For example, ground rules could state that MoF and MELP will conduct evaluations of RMP and investment plans, focusing on stewardship considerations and on consistency with higher level plans. In addition, ground rules could state that FRBC, in consultation with the ministries, will organize and facilitate a broad evaluation of resource management and investment planning in the previous year.

Conflict Resolution Guidelines

Ground rules may include guidelines for conflict resolution. This section may include references to recognized strategies for preventing and resolving conflict, such as: focusing on underlying interests and avoiding being positional; seeking to understand and promote other parties' interests; and using interest-based negotiation skills to seek win-win solutions.

Ground rules may state that conflict resolution processes will be consistent with the principles and process outlined in the "Dispute Resolution" section of services agreements between the respective agencies. Ground rules may indicate a sequence of conflict resolution steps such as the following:

1. Informal resolution among the parties (using constructive, interest-based negotiation)

2. Resolution by the senior regional administrators for each of the respective agencies.

3. Resolution by Assistant Deputy Minister level representatives of the agencies.

Signatures

It is recommended that ground rules be signed by representatives of each of the three agencies. Signatures are a way to confirm mutual commitments identified in the ground rules.

Principles for Partner Involvement in Resource Management and Investment Planning

The following ten principles are designed to support sound partner involvement in resource management and investment planning. Practices which reflect these principles will be defensible in terms of widely accepted planning process standards.

1. Higher Level Plans

RMPs and investment plans are consistent with higher level plans. Participants in LRMPs (Land and Resource Management Plans) and Strategic Land Use Plans are invited to participate in annual evaluations of the overall resource management and investment planning.

Performance measure: participants in annual evaluations indicate that RMPs and investment plans are consistent with the intent of higher level plans.

2. Who Is Invited

Those who have relevant technical expertise are invited to participate in development of RMPs, and **industry, labour, First Nations, environment, community, and government organizations** are invited to participate at one or more other stage(s) of the planning cycle.

Performance measure: RMP appendices show that those with relevant technical expertise were invited to provide input and feedback in RMP development; documentation by FRBC shows that government, First Nations, community, industry, labour, and environmental organizations were invited to participate in investment planning and/or in evaluation of the overall process.

3. Process Transparency

Interested parties are informed of process context. Parties being invited to contribute input and/or feedback are informed of how such information will be used and how it fits into the overall planning cycle. FRBC informs ministries of criteria used in investment planning.

Performance measures: participants indicate that they felt well informed about the process context and the planned use of their input/feedback; ministries indicate adequate understanding of investment planning criteria.

4. Degree of Involvement

The degree of involvement being invited at various stages is explicit. People are informed of whether their role is to provide advice, or to directly participate in decision making. Providing information without intent to use input/feedback is not involvement.

____ Performance measure: participants indicate a clear understanding of the level(s) of involvement being invited.

5. Diversity of Opportunities

There are a variety of opportunities for involvement. Planning processes are designed to accommodate the diverse ways that people receive and provide information and the variety of desired levels of involvement.

____ Performance measure: individuals within categories of intended participants indicate that they perceived appropriate options in the type and level of their involvement.

6. Plain Language

Technical terms and acronyms are defined or explained. To create fair opportunities for participation, technical terms and acronyms are clearly defined and/or explained in plain language.

____ Performance measure: plans and presentation materials are tested on non-experts and necessary clarifications are made.

7. Utility

Involvement in planning is designed to be productive. Input and feedback is gathered when there are clear intentions and plans for use of that information.

____ Performance measure: input and feedback is systematically documented, analyzed, and considered in decision making.

8. Public Accountability

Planning processes are designed to maximize the effectiveness and efficiency of public investments in resource management. Agreement holders and other invited parties provide input and feedback for the purpose of contributing to the public interest.

____ Performance measure: government agencies observe a shift of planning focus from inputs and private interests to outcomes and the public interest.

9. Closing the Loop

The communication loop gets closed. Feedback/input is thoroughly documented and made available to participants. Participants are informed of how their input/feedback has been used.

____ Performance measure: each effort to gather opinion is followed by efforts to inform participants of findings and how these have been used.

10. Process Development

Planning processes are continuously improved. Interested parties are invited to provide input and feedback on the planning process itself.

____ Performance measure: process evaluation is included as a component in each involvement exercise.

Definitions

Partner. In the context of RMP ground rules, a "partner" may be an agreement holder, contractor, or other interested party. FRBC has identified five categories of partners, as follows: government, First Nations, community, industry, labour, and environmental organizations

Agreement Holder. An organization which is under contract to provide services on behalf of FRBC.

Contractor. An organization which is under contract with an agreement holder to provide services on behalf of FRBC.

Involvement. Provision of input or feedback as part of a planning process.

Feedback. Comment provided in reaction to draft material (e.g., a draft plan) as part of a planning process.

Input. Comment provided, typically early in a planning process, which is not a reaction to draft material.

Performance measure. In the context of RMP ground rules, "performance measure" refers to specific objectives to be achieved, typically within specified time frames, relative to FRBC Strategic Objectives.

Geographic units. For various Strategic Objectives, geographic units or levels of planning may be FRBC regions, MoF districts, TSAs (Timber Supply Areas), and/or TFLs (Tree Farm Licenses).

Note: should any of the definitions provided here be inconsistent with definitions in services agreements between FRBC, MoF, and MELP, the definitions in services agreements will stand.

Orig

								Region Total	6,092,445	4,918,311		100.7	77.9
								Management Unit Total	171,510	171,510		2.7	2.7
Activity				Proposed Treatment Area - (ha's)				Cost and Jobs - Year 1 Only					
	Strategy Reference	Priority	Program Adj. Factor	Year (starting fiscal 2002/03)				Unit Cost	Year 1 Cost	Yr 1 Adjusted Cost	Unit Jobs	Yr 1 Jobs	Yr 1 Adj Jobs
Activity				1	1 - Adj	2	3	($)	($)	($)	(days/ ha)	(p/y)	(p/y)
BACKLOG REFORESTATION													
Survey								31			0.1		
Obligation	1		1	200	200	200	200		6,200	6,200		0.1	0.1
Other (specify)			1	-	-	100	100		-	-		-	-
needs		2	1	100	100				3,100	3,100		0.0	0.0
Subtot				300	300	300	300		9,300	9,300		0.1	0.1
Site Prep								990			2.2		
			1		-				-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Plant/Fill Plant								870			3.0		
obligation			1	73	73	25	10		63,510	63,510		1.0	1.0
other			1		-				-	-		-	-
			1		-				-	-		-	-
Seed/Seedling			1		-			0.30	-	-	0.001	-	-
Subtot				73	73	25	10		63,510	63,510		1.0	1.0
Brush								620			2.6		
Obligation	1		1	46	46	202	202		28,520	28,520		0.5	0.5
other			1	-	-	-	-		-	-		-	-
needs		1	1	89	89				55,180	55,180		1.1	1.1
Subtot				135	135	202	202		83,700	83,700		1.6	1.6
Space (Max. Density)								690			3.2		
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Other (specify)													
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot									-	-		-	-
Program Total									156,510	156,510		2.7	2.7
FOREST RESTORATION													
Survey													
			1		-			31	-	-	0.1	-	-
Rehabilitate													
			1		-			990	-	-	2.2	-	-
Plant/Fill Plant													
			1		-			870	-	-	3.0	-	-
Brush													
			1		-			620	-	-	2.6	-	-
Other (specify)													
			1		-				-	-		-	-
Program Total									-	-		-	-
STAND TENDING													
Survey								31			0.1		
			1		-				-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Space								15,000			3.2		
needs		3	1	1	1	1	1		15,000	15,000		0.0	0.0
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				1	1	1	1		15,000	15,000		0.0	0.0
Fertilize								290			0.7		
			1		-				-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Prune								620			3.3		
			1		-				-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Other (specify)													
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Program Total									15,000	15,000		0.0	0.0
FOREST HEALTH ENHANCEM													
Survey													
			1		-			31	-	-	0.1	-	-
Space													
			1		-			690	-	-	3.2	-	-
Prune													
			1		-			620	-	-	3.3	-	-
Other (specify)													
			1		-				-	-		-	-
Program Total									-	-		-	-
GRAND TOTAL									**171,510**	**171,510**		**2.7**	**2.7**

Rgn Tot			0.0	0.0	0.0	0.0	257.0	257.0	215.8	215.8	1,591	1,591	-	-	-	-	-	-
MU Tot			0.0	0.0	0.0	0.0	22.8	22.8	0.0	0.0	-	-	-	-	-	-	-	-

			Stand level outcome of Year 1 activity															
				Timber quantity outcome (000's m3, by time period)								Timber quality outcome (# ha, by % change in stand value)							
Activity	Strategy Reference	Priority	Maintain Basecase	yr 1-20	yr 1-20 Adj	yr 21-50	yr 21-50 Adj	yr 51-100	yr 51-100 Adj	yr 100+	yr 100+ Adj	1-20%	1-20% Adj	21-40%	21-40% Adj	41-60%	41-60% Adj	>60%	>60% Adj
BACKLOG REFOREST																			
Survey																			
Obligation	1		X																
Other (specify)																			
needs		2	X																
Subtot																			
Site Prep																			
					0.0		0.0		0.0		0.0								
					0.0		0.0		0.0		0.0								
					0.0		0.0		0.0		0.0								
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0								
Plant/Fill Plant																			
obligation			X		0.0		0.0	19.3	19.3		0.0								
other					0.0		0.0		0.0		0.0								
					0.0		0.0		0.0		0.0								
Seed/Seedling																			
Subtot				0.0	0.0	0.0	0.0	19.3	19.3	0.0	0.0								
Brush																			
Obligation	1		X		0.0		0.0	1.2	1.2		0.0		-		-		-		-
other					0.0		0.0		0.0		0.0		-		-		-		-
needs		1	X		0.0		0.0	2.3	2.3		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	3.6	3.6	0.0	0.0	-	-	-	-	-	-	-	-
Space (Max. Density)																			
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Other (specify)																			
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Program Total				0.0	0.0	0.0	0.0	22.8	22.8	0.0	0.0	-	-	-	-	-	-	-	-
FOREST RESTORATIO																			
Survey																			
Rehabilitate																			
					0.0		0.0		0.0		0.0								
Plant/Fill Plant																			
					0.0		0.0		0.0		0.0								
Brush																			
					0.0		0.0		0.0		0.0		-		-		-		-
Other (specify)																			
					0.0		0.0		0.0		0.0		-		-		-		-
Program Total				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
STAND TENDING																			
Survey																			
Subtot																			
Space																			
needs		3			0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Fertilize																			
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Prune																			
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Other (specify)																			
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Program Total				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
FOREST HEALTH ENH																			
Survey																			
Space																			
					0.0		0.0		0.0		0.0		-		-		-		-
Prune																			
					0.0		0.0		0.0		0.0		-		-		-		-
Other (specify)																			
					0.0		0.0		0.0		0.0		-		-		-		-
Program Total				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
GRAND TOTAL				**0.0**	**0.0**	**0.0**	**0.0**	**22.8**	**22.8**	**0.0**	**0.0**	-	-	-	-	-	-	-	-

Orig

Region Total	6,092,445	4,918,311
Management Unit Total	171,510	171,510

100.7	77.9	
2.7	2.7	

Treatment Area Data — Cost and Jobs - Year 1 Only

Activity	Strategy Reference	Priority	Program Adj. Factor	Year (starting fiscal 2002/03) 1	1 - Adj	2	3	Unit Cost ($)	Year 1 Cost ($)	Yr 1 Adjusted Cost ($)	Unit Jobs (days/ha)	Yr 1 Jobs (p/y)	Yr 1 Adj Jobs (p/y)
BACKLOG REFORESTATION													
Survey								31			0.1		
Obligation	1		1	200	200	200	200		6,200	6,200		0.1	0.1
Other (specify)			1	-	-	100	100		-	-		-	-
needs		2	1	100	100				3,100	3,100		0.0	0.0
Subtot				300	300	300	300		9,300	9,300		0.1	0.1
Site Prep								990			2.2		
			1		-				-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Plant/Fill Plant								870			3.0		
obligation			1	73	73	25	10		63,510	63,510		1.0	1.0
other			1		-				-	-		-	-
			1		-				-	-		-	-
Seed:Seedling			1		-			0.30	-	-	0.001	-	-
Subtot				73	73	25	10		63,510	63,510		1.0	1.0
Brush								620			2.6		
Obligation	1		1	46	46	202	202		28,520	28,520		0.5	0.5
other			1	-	-	-	-		-	-		-	-
needs		1	1	89	89				55,180	55,180		1.1	1.1
Subtot				135	135	202	202		83,700	83,700		1.6	1.6
Space (Max. Density)								690			3.2		
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Other (specify)													
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot									-	-		-	-
Program Total									156,510	156,510		2.7	2.7
FOREST RESTORATION													
Survey													
			1		-			31	-	-	0.1	-	-
Rehabilitate													
			1		-			990	-	-	2.2	-	-
Plant/Fill Plant													
			1		-			870	-	-	3.0	-	-
Brush													
			1		-			620	-	-	2.6	-	-
Other (specify)													
			1		-				-	-		-	-
Program Total									-	-		-	-
STAND TENDING													
Survey								31			0.1		
			1		-				-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Space								15,000			3.2		
needs		3	1	1	1	1	1		15,000	15,000		0.0	0.0
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				1	1	1	1		15,000	15,000		0.0	0.0
Fertilize								250			0.7		
			1		-				-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Prune								620			3.3		
			1		-				-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Other (specify)													
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Program Total									15,000	15,000		0.0	0.0
FOREST HEALTH ENHANCEM													
Survey													
			1		-			31	-	-	0.1	-	-
Space													
			1		-			980	-	-	3.2	-	-
Prune													
			1		-			620	-	-	3.3	-	-
Other (specify)													
			1		-				-	-		-	-
Program Total									-	-		-	-
GRAND TOTAL									171,510	171,510		2.7	2.7

Rgn Tot			0.0	0.0	0.0	0.0	257.0	257.0	215.8	215.8	1,591	1,591	-	-	-	-	-	-			
MU Tot			0.0	0.0	0.0	0.0	22.8	22.8	0.0	0.0	-	-	-	-	-	-	-	-			
Stand level outcome of Year 1 activity																					
				Timber quantity outcome (000's m3, by time period)									Timber quality outcome (# ha, by % change in stand value)								
Activity	Strategy Reference	Priority	Maintain BaseCase	yr 1-20	yr 1-20 Adj	yr 21-50	yr 21-50 Adj	yr 51-100	yr 51-100 Adj	yr 100+	yr 100+ Adj	1-20%	1-20% Adj	21-40%	21-40% Adj	41-60%	41-60% Adj	>60%	>60% Adj		
BACKLOG REFOREST																					
Survey																					
Obligation	1		X																		
Other (specify)																					
needs	2		X																		
Subtot																					
Site Prep					0.0		0.0		0.0		0.0										
					0.0		0.0		0.0		0.0										
					0.0		0.0		0.0		0.0										
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0										
Plant/Fill Plant																					
obligation			X		0.0		0.0	19.3	19.3		0.0										
other					0.0		0.0		0.0		0.0										
					0.0		0.0		0.0		0.0										
Seed/Seedling																					
Subtot				0.0	0.0	0.0	0.0	19.3	19.3	0.0	0.0										
Brush																					
Obligation	1		X		0.0		0.0	1.2	1.2		0.0		-		-		-		-		
other					0.0		0.0		0.0		0.0		-		-		-		-		
needs	1		X		0.0		0.0	2.3	2.3		0.0		-		-		-		-		
Subtot				0.0	0.0	0.0	0.0	3.6	3.6	0.0	0.0	-	-	-	-	-	-	-	-		
Space (Max. Density)					0.0		0.0		0.0		0.0		-		-		-		-		
					0.0		0.0		0.0		0.0		-		-		-		-		
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-		
Other (specify)					0.0		0.0		0.0		0.0		-		-		-		-		
					0.0		0.0		0.0		0.0		-		-		-		-		
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-		
Program Total				0.0	0.0	0.0	0.0	22.8	22.8	0.0	0.0	-	-	-	-	-	-	-	-		
FOREST RESTORATION																					
Survey																					
Rehabilitate					0.0		0		0.0		0.0										
Plant/Fill Plant					0.0		0.0		0.0		0.0										
Brush					0.0		0.0		0.0		0.0		-		-		-		-		
Other (specify)					0.0		0.0		0.0		0.0		-		-		-		-		
Program Total				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-		
STAND TENDING																					
Survey																					
Subtot																					
Space																					
needs	3				0.0		0.0		0.0		0.0		-		-		-		-		
					0.0		0.0		0.0		0.0		-		-		-		-		
					0.0		0.0		0.0		0.0		-		-		-		-		
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-		
Fertilize					0.0		0.0		0.0		0.0		-		-		-		-		
					0.0		0.0		0.0		0.0		-		-		-		-		
					0.0		0.0		0.0		0.0		-		-		-		-		
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-		
Prune					0.0		0.0		0.0		0.0		-		-		-		-		
					0.0		0.0		0.0		0.0		-		-		-		-		
					0.0		0.0		0.0		0.0		-		-		-		-		
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-		
Other (specify)					0.0		0.0		0.0		0.0		-		-		-		-		
					0.0		0.0		0.0		0.0		-		-		-		-		
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-		
Program Total				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-		
FOREST HEALTH ENH																					
Survey																					
Space					0.0		0.0		0.0		0.0		-		-		-		-		
Prune					0.0		0.0		0.0		0.0		-		-		-		-		
Other (specify)					0.0		0.0		0.0		0.0		-		-		-		-		
Program Total				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-		
GRAND TOTAL				0.0	0.0	0.0	0.0	22.8	22.8	0.0	0.0	-	-	-	-	-	-	-	-		

Activity	Strategy Reference	Priority	Habitat Outcome (Describe)	Additional Decision Criteria: Legal Obl'n?	Probability H-M-L	Biological Window?	First Nations	Other	Regional Rank: Intra - Program Rank	X - Prog Rank (Optional)	Comments
BACKLOG REFOREST											
Survey											
Obligation	1			X	H						
Other (specify)											
needs		2									Impeded stands
Subtot											
Site Prep											
Subtot											
Plant/Fill Plant											
obligation				X	H	X					
other											
Seed/Seedling											
Subtot											
Brush											
Obligation	1			X	H	X					Legal Obligation
other											
needs		1		X	H	X					Legal Obligation
Subtot											
Space (Max. Density)											
Subtot											
Other (specify)											
Subtot											
Program Total											
FOREST RESTORATIO											
Survey											
Rehabilitate											
Plant/Fill Plant											
Brush											
Other (specify)											
Program Total											
STAND TENDING											
Survey											
Subtot											
Space											
needs		3			H			X			Mt. Sentinel School Forestry Program
Subtot											
Fertilize											
Subtot											
Prune											
Subtot											
Other (specify)											
Subtot											
Program Total											
FOREST HEALTH ENH											
Survey											
Space											
Prune											
Other (specify)											
Program Total											
GRAND TOTAL											

Orig

Region Total	6,092,445	4,918,311	100.7	77.9
Management Unit Total	198,600	198,600	3.3	3.3

Activity	Strategy Reference	Priority	Program Adj. Factor	Proposed Treatment Area - (ha's) Year (starting fiscal 2002/03) 1	1 - Adj	2	3	Cost and Jobs - Year 1 Only Unit Cost ($)	Year 1 Cost ($)	Yr 1 Adjusted Cost ($)	Unit Jobs (days/ha)	Yr 1 Jobs (p/y)	Yr 1 Adj Jobs (p/y)
BACKLOG REFORESTATION													
Survey								25			0.1		
Obligations	See cmmts		1	130	130	82	170		3,250	3,250		0.1	0.1
Other (specify)			1	510	510	365	150		12,750	12,750		0.2	0.2
Needs			0		-				-	-		-	-
Subtot				640	640	447	320		16,000	16,000		0.3	0.3
Site Prep								990			2.2		
			1		-				-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Plant/Fill Plant								660			3.0		
Obligation	See cmmts		1	170	170				112,200	112,200		2.3	2.3
Other			1		-				-	-		-	-
Needs			0		-				-	-		-	-
Seed/Seedling			1		-			0.30	-	-	0.001	-	-
Subtot				170	170	-	-		112,200	112,200		2.3	2.3
Brush								640			2.6		
Obligation	See cmmts		1		-	30	30		-	-		-	-
Other			1	60	60	50	50		38,400	38,400		0.7	0.7
Needs			0		-				-	-		-	-
Subtot				60	60	80	80		38,400	38,400		0.7	0.7
Space (Max. Density)								690			3.2		
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Other (specify)													
			1		-				-	-		-	-
Needs			1	50	50	50	50	160	8,000	8,000		-	-
Subtot									8,000	8,000		-	-
Program Total									174,600	174,600		3.3	3.3
FOREST RESTORATION													
Survey													
			1		-			31	-	-	0.1	-	-
Rehabilitate													
			1		-			990	-	-	2.2	-	-
Plant/Fill Plant													
			1		-			870	-	-	3.0	-	-
Brush													
			1		-			620	-	-	2.6	-	-
Other (specify)													
			1		-				-	-		-	-
Program Total									-	-		-	-
STAND TENDING													
Survey								31			0.1		
			1		-				-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Space								690			3.2		
	0	0	0	-	-	50	50		-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	50	50		-	-		-	-
Fertilize								290			0.7		
			1		-				-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Prune								620			3.3		
	5	0	1		-	44	95		-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	44	95		-	-		-	-
Other (specify)													
Needs			1	150	150	150	150	160	24,000	24,000		-	-
			0		-				-	-		-	-
Subtot				150	150	150	150		24,000	24,000		-	-
Program Total									24,000	24,000		-	-
FOREST HEALTH ENHANCEM													
Survey													
			1		-			31	-	-	0.1	-	-
Space													
			1		-			690	-	-	3.2	-	-
Prune													
			1		-			620	-	-	3.3	-	-
Other (specify)													
			1		-				-	-		-	-
Program Total									-	-		-	-
GRAND TOTAL									**198,600**	**198,600**		**3.3**	**3.3**

		Rgn To	0.0	0.0	0.0	0.0	257.0	257.0	215.8	215.8	1,591	1,591	-	-	-	-	-	-
		MU Tot	0.0	0.0	0.0	0.0	1.6	1.6	54.8	54.8	-	-	-	-	-	-	-	-
Activity		Stand level outcome of Year 1 activity																	
				Timber quantity outcome (000's m3, by time period)								Timber quality outcome (# ha, by % change in stand value)							
Activity	Strategy Reference	Priority	Maintain BaseCase	yr 1-20	yr 1-20 Adj	yr 21-50	yr 21-50 Adj	yr 51-100	yr 51-100 Adj	yr 100+	yr 100+ Adj	1-20%	1-20% Adj	21-40%	21-40% Adj	41-60%	41-60% Adj	>60%	>60% Adj
BACKLOG REFOREST																			
Survey																			
Obligations See cmmts			X																
Other (specify)			X																
Needs																			
Subtot																			
Site Prep																			
					0.0		0.0		0.0		0.0								
					0.0		0.0		0.0		0.0								
					0.0		0.0		0.0		0.0								
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0								
Plant/Fill Plant																			
Obligation See cmmts			X		0.0		0.0		0.0	54.8	54.8								
Other					0.0		0.0		0.0		0.0								
Needs					0.0		0.0		0.0		0.0								
Seed/Seedling			X																
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	54.8	54.8								
Brush																			
Obligation See cmmts					0.0		0.0		0.0		0.0		-		-		-		-
Other			X		0.0		0.0	1.6	1.6		0.0		-		-		-		-
Needs					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	1.6	1.6	0.0	0.0	-	-	-	-	-	-	-	-
Space (Max. Density)																			
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Other (specify)																			
					0.0		0.0		0.0		0.0		-		-		-		-
Needs					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Program Total				0.0	0.0	0.0	0.0	1.6	1.6	54.8	54.8	-	-	-	-	-	-	-	-
FOREST RESTORATIO																			
Survey																			
Rehabilitate																			
					0.0		0.0		0.0		0.0								
Plant/Fill Plant																			
					0.0		0.0		0.0		0.0								
Brush																			
					0.0		0.0		0.0		0.0		-		-		-		-
Other (specify)																			
					0.0		0.0		0.0		0.0		-		-		-		-
Program Total				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
STAND TENDING																			
Survey																			
Subtot																			
Space																			
	0	0			0.0		0.0		0.0		0.0		-	-	-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Fertilize																			
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Prune																			
	5	0			0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Other (specify)																			
Needs					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Program Total				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
FOREST HEALTH ENH																			
Survey																			
Space																			
					0.0		0.0		0.0		0.0		-		-		-		-
Prune																			
					0.0		0.0		0.0		0.0		-		-		-		-
Other (specify)																			
					0.0		0.0		0.0		0.0		-		-		-		-
Program Total				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
GRAND TOTAL				0.0	0.0	0.0	0.0	1.6	1.6	54.8	54.8	-	-	-	-	-	-	-	-

Activity	Strategy Reference	Priority	Habitat Outcome (Describe)	Additional Decision Criteria: Legal Obl'n?	Probability H-M-L	Biological Window?	First Nations	Other	Regional Rank: Intra - Program Rank	X - Prog Rank (Optional)	Comments
BACKLOG REFOREST											**Backlog not addressed in Type 1 silv strategy.**
Survey											
Obligations See cmmts				X	H	X					Legal Obligation
Other (specify)						X					Impeded areas
Needs											
Subtot											
Site Prep											
Subtot											
Plant/Fill Plant											
Obligation See cmmts				X	H	X					Legal requirement to complete to Free Growing
Other											
Needs											
Seed/Seedling											
Subtot											
Brush											
Obligation See cmmts											
Other					H	X					Backlog area. No volume outcome as doesn't begin until yr 2.
Needs											Impeded area.
Subtot											
Space (Max. Density)											
Subtot											
Other (specify)											
Needs											Prescriptions
Subtot											
Program Total											
FOREST RESTORATIO											
Survey											
Rehabilitate											
Plant/Fill Plant											
Brush											
Other (specify)											
Program Total											
STAND TENDING											
Survey											
Subtot											
Space											
0 0											Spacing not precluded from Type I strategy - See Table 7.3
Subtot											
Fertilize											
Subtot											
Prune											
5 0											No pruning outcome as doesn't begin until yr 2.
Subtot											
Other (specify)											
Needs											Prescriptions - Preparation for post backlog planting to enhanced transition
Subtot											
Program Total											
FOREST HEALTH ENH											
Survey											
Space											
Prune											
Other (specify)											
Program Total											
GRAND TOTAL											

Orig

							Region Total	6,092,445	4,918,311		100.7	77.9
							Management Unit Total	183,850	173,850		2.7	2.7
Activity				Proposed Treatment Area - (ha's)				Cost and Jobs - Year 1 Only					
	Strategy Reference	Priority	Program Adj. Factor	Year (starting fiscal 2002/03)				Unit Cost	Year 1 Cost	Yr 1 Adjusted Cost	Unit Jobs	Yr 1 Jobs	Yr 1 Adj Jobs
				1	1 - Adj	2	3	($)	($)	($)	(days/ha)	(p/y)	(p/y)
BACKLOG REFORESTATION													
Survey								31			0.1		
Obligation			1	1,000	1,000	750	750		31,000	31,000		0.5	0.5
Other (specify)			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				1,000	1,000	750	750		31,000	31,000		0.5	0.5
Site Prep								990			2.2		
			1		-				-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Plant/Fill Plant								870			3.0		
			1		-				-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Seed/Seedling			1		-			0.30	-	-	0.001	-	-
Subtot				-	-	-	-		-	-		-	-
Brush								620			2.6		
Obligation			1		-	20			-	-		-	-
Other			1		-	40	40		-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	60	40		-	-		-	-
Space (Max. Density)								690			3.2		
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Other (specify)													
Monitoring			1	1	1			5,000	5,000	5,000		-	-
			1		-				-	-		-	-
Subtot									5,000	5,000		-	-
Program Total									36,000	36,000		0.5	0.5
FOREST RESTORATION													
Survey													
			1		-			31	-	-	0.1	-	-
Rehabilitate													
			1		-			990	-	-	2.2	-	-
Plant/Fill Plant													
			1		-			870	-	-	3.0	-	-
Brush													
			1		-			620	-	-	2.6	-	-
Other (specify)													
Strategy Analysis			0	1	-			10,000	10,000	-			
Treatment Study			1	250	250	250	250	31	7,750	7,750			
Ground Truthing			1	500	500			15	7,500	7,500		-	-
Program Total									25,250	15,250		-	-
STAND TENDING													
Survey								31			0.1		
			1	550	550				17,050	17,050		0.3	0.3
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				550	550	-	-		17,050	17,050		0.3	0.3
Space								690			3.2		
			1	125	125	175	175		86,250	86,250		1.8	1.8
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				125	125	175	175		86,250	86,250		1.8	1.8
Fertilize								290			0.7		
			1		-		700		-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	700		-	-		-	-
Prune								620			3.3		
			1		-				-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Other (specify)													
Screening trial			1	20	20			250	5,000	5,000			
Fert. Layout			1	-	-	750		5	-	-		-	-
Density study			1	1	1			5,000	5,000	5,000		-	-
Subtot				21	21	750	-		10,000	10,000		-	-
Program Total									113,300	113,300		2.1	2.1
FOREST HEALTH ENHANCEM													
Survey													
			1	300	300			31	9,300	9,300	0.1	0.1	0.1
Space													
			1		-			690	-	-	3.2	-	-
Prune													
			1		-			620	-	-	3.3	-	-
Other (specify)													
			0	-	-			-	-	-		-	-
Program Total									9,300	9,300		0.1	0.1
GRAND TOTAL									183,850	173,850		2.7	2.7

Rgn Tc	0.0	0.0	0.0	0.0	257.0	257.0	215.8	215.8	1,591	1,591	-	-	-	-	-	-
MU Tot	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	125	125	-	-	-	-	-	-

Activity	Strategy Reference	Priority	Maintain BaseCase	Timber quantity outcome (000's m3, by time period)								Timber quality outcome (# ha, by % change in stand value)							
				yr 1-20	yr 1-20 Adj	yr 21-50	yr 21-50 Adj	yr 51-100	yr 51-100 Adj	yr 100+	yr 100+ Adj	1-20%	1-20% Adj	21-40%	21-40% Adj	41-60%	41-60% Adj	>60%	>60% Adj
Stand level outcome of Year 1 activity																			
BACKLOG REFORESTA																			
Survey																			
Obligation			X																
Other (specify)																			
Subtot																			
Site Prep																			
					0.0		0.0		0.0		0.0								
					0.0		0.0		0.0		0.0								
					0.0		0.0		0.0		0.0								
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0								
Plant/Fill Plant																			
					0.0		0.0		0.0		0.0								
					0.0		0.0		0.0		0.0								
					0.0		0.0		0.0		0.0								
Seed/Seedling																			
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0								
Brush																			
Obligation					0.0		0.0		0.0		0.0		-		-		-		-
Other					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Space (Max. Density)																			
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Other (specify)																			
Monitoring					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Program Total				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
FOREST RESTORATIO																			
Survey																			
Rehabilitate																			
					0.0		0.0		0.0		0.0								
Plant/Fill Plant																			
					0.0		0.0		0.0		0.0								
Brush																			
					0.0		0.0		0.0		0.0		-		-		-		-
Other (specify)																			
Strategy Analysis																			
Treatment Study																			
Ground Truthing					0.0		0.0		0.0		0.0		-		-		-		-
Program Total				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
STAND TENDING																			
Survey																			
Subtot																			
Space																			
					0.0		0.0	2.0	2.0		0.0	125	125		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	125	125	-	-	-	-	-	-
Fertilize																			
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Prune																			
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Other (specify)																			
Screening trial																			
Fert. Layout					0.0		0.0		0.0		0.0		-		-		-		-
Density study					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Program Total				0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	125	125	-	-	-	-	-	-
FOREST HEALTH ENHA																			
Survey																			
Space																			
					0.0		0.0		0.0		0.0		-		-		-		-
Prune																			
					0.0		0.0		0.0		0.0		-		-		-		-
Other (specify)																			
					0.0		0.0		0.0		0.0		-		-		-		-
Program Total				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
GRAND TOTAL				0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	125	125	-	-	-	-	-	-

Activity	Strategy Reference	Priority	Habitat Outcome (Describe)	Additional Decision Criteria: Legal Obl'n?	Probability H-M-L	Biological Window?	First Nations	Other	Regional Rank: Intra - Program Rank	X - Prog Rank (Optional)	Comments
BACKLOG REFOREST											
Survey											
Obligation			X	X	H	X					Identify prime habitat areas
Other (specify)											
Subtot											
Site Prep											
Subtot											
Plant/Fill Plant											
Seed/Seedling											
Subtot											
Brush											
Obligation			X	X	H	X					Improve habitat through deciduous treatments
Other			X		H	X					Habitat improvements through aspen treatments
Subtot											
Space (Max. Density)											
Subtot											
Other (specify)											
Monitoring					H						Type 2 strategy monitoring to ensure targets met
Subtot											
Program Total											
FOREST RESTORATIO											
Survey											
Rehabilitate											
Plant/Fill Plant											
Brush											
Other (specify)											
Strategy Analysis			X		H						Identify prime areas and required treatments
Treatment Study			X		H	X					Identify habitats that can be improved via silv. Treatments
Ground Truthing					H						Problem forest type ground truthing
Program Total											
STAND TENDING											
Survey				X	H	X					SMP's and layout required for spacing
Subtot											
Space			X		H	X					Improve habitat by stand manipulation
Subtot											
Fertilize					H	X					Roll up treatment into one year for economy of scale savings
Subtot											
Prune											
Subtot											
Other (specify)											
Screening trial											As identified in Type 2 studies requirement
Fert. Layout											Required in year 2 for 3rd year treatment
Density study											Information to ensure modeling assumptions achieved
Subtot											
Program Total											
FOREST HEALTH ENHA											
Survey					H	X					Monitor forest health of Juvenile stands
Space											
Prune											
Other (specify)											
Program Total											
GRAND TOTAL											

Only

									Region Total	6,092,445	4,918,311		100.7	77.9
									Management Unit Total	532,965	532,965		6.9	6.9
Activity					Proposed Treatment Area - (ha's)				Cost and Jobs - Year 1 Only					
					Year (starting fiscal 2002/03)				Unit Cost	Year 1 Cost	Yr 1 Adjusted Cost	Unit Jobs	Yr 1 Jobs	Yr 1 Adj Jobs
Activity	Strategy Reference	Priority	Program Adj. Factor	1	1 - Adj	2	3	($)	($)	($)	(days/ha)	(p/y)	(p/y)
BACKLOG REFORESTATION														
Survey								33			0.1		
obligation	Gen	1	1	600	600	250	250		19,800	19,800		0.3	0.3
Other (spec	Gen	1	1	2,125	2,125	1,925	1,725		70,125	70,125		1.0	1.0
needs	Gen	1	0	-	-	-	-		-	-		-	-
Subtot				2,725	2,725	2,175	1,975		89,925	89,925		1.2	1.2
Site Prep								990			2.2		
			1		-				-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Plant/Fill Plant								870			3.0		
			1		-				-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Seed/Seedling			1		-			0.30	-	-	0.001	-	-
Subtot				-	-	-	-		-	-		-	-
Brush								900			2.6		
obligation	LT1	2	1	20	20	20	20		18,000	18,000		0.2	0.2
Other (spec	LT1	2	1	280	280	130	130		252,000	252,000		3.3	3.3
needs			1		-				-	-		-	-
Subtot				300	300	150	150		270,000	270,000		3.5	3.5
Space (Max. Density)								1,300			3.2		
			1	15	15	25	20		19,500	19,500		0.2	0.2
needs			0		-				-	-		-	-
Subtot				15	15	25	20		19,500	19,500		0.2	0.2
Other (specify)													
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot									-	-		-	-
Program Total									379,425	379,425		5.0	5.0
FOREST RESTORATION														
Survey														
			1		-			31	-	-	0.1	-	-
Rehabilitate														
			1		-			990	-	-	2.2	-	-
Plant/Fill Plant														
			1		-			870	-	-	3.0	-	-
Brush														
			1		-			620	-	-	2.6	-	-
Other (specify)														
			1		-				-	-		-	-
Program Total									-	-		-	-
STAND TENDING														
Survey								33			0.1		
	Gen	1	1	600	600	400	400		19,800	19,800		0.3	0.3
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				600	600	400	400		19,800	19,800		0.3	0.3
Space								1,300			3.2		
			1	75	75	75	100		97,500	97,500		1.1	1.1
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				75	75	75	100		97,500	97,500		1.1	1.1
Fertilize								290			0.7		
			1		-				-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Prune								620			3.3		
	MT5		1		-				-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Other (specify)														
			1	375	375			40	15,000	15,000		-	-
needs			0		-				-	-		-	-
Subtot				375	375	-	-		15,000	15,000		-	-
Program Total									132,300	132,300		1.4	1.4
FOREST HEALTH ENHANCEM														
Survey														
			1	80	80	20	20	33	2,640	2,640	0.1	0.0	0.0
Space														
			1		-			990	-	-	3.2	-	-
Prune														
	MT 5	4	1	30	30	150	150	620	18,600	18,600	3.3	0.5	0.5
Other (specify)														
			1		-				-	-		-	-
Program Total									21,240	21,240		0.5	0.5
GRAND TOTAL									532,965	532,965		6.9	6.9

			Rgn To	0.0	0.0	0.0	0.0	257.0	257.0	215.8	215.8	1,591	1,591	-	-	-	-	-	-
			MU Tot	0.0	0.0	0.0	0.0	3.2	3.2	0.0	0.0	120	120	-	-	-	-	-	-
Activity	Strategy Reference	Priority	Maintain Base Case	Stand-level outcome of Year 1 activity: Timber quantity outcome (000's m3, by time period) yr 1-20	yr 1-20 Adj	yr 21-50	yr 21-50 Adj	yr 51-100	yr 51-100 Adj	yr 100+	yr 100+ Adj	Timber quality outcome (# ha, by % change in stand value) 1-20%	1-20% Adj	21-40%	21-40% Adj	41-60%	41-60% Adj	>60%	>60% Adj
BACKLOG REFOREST																			
Survey																			
obligation	Gen	1																	
Other (spec	Gen	1																	
needs	Gen	1																	
Subtot																			
Site Prep																			
					0.0		0.0		0.0		0.0								
					0.0		0.0		0.0		0.0								
					0.0		0.0		0.0		0.0								
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0								
Plant/Fill Plant																			
					0.0		0.0		0.0		0.0								
					0.0		0.0		0.0		0.0								
					0.0		0.0		0.0		0.0								
Seed/Seedling																			
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0								
Brush																			
obligation	LT1	2	X		0.0		0.0	0.0	0.0		0.0		-		-		-		-
Other (spec	LT1	2	X		0.0		0.0	0.5	0.5		0.0		-		-		-		-
needs					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	-	-	-	-	-	-	-	-
Space (Max. Density)																			
			X		0.0		0.0	1.5	1.5		0.0	15	15		-		-		-
needs					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	1.5	1.5	0.0	0.0	15	15	-	-	-	-	-	-
Other (specify)																			
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Program Total				0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	15	15	-	-	-	-	-	-
FOREST RESTORATION																			
Survey																			
Rehabilitate																			
					0.0		0.0		0.0		0.0								
Plant/Fill Plant																			
					0.0		0.0		0.0		0.0								
Brush																			
					0.0		0.0		0.0		0.0		-		-		-		-
Other (specify)																			
					0.0		0.0		0.0		0.0		-		-		-		-
Program Total				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
STAND TENDING																			
Survey																			
	Gen	1																	
Subtot																			
Space																			
					0.0		0.0	1.2	1.2		0.0	75	75		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	1.2	1.2	0.0	0.0	75	75	-	-	-	-	-	-
Fertilize																			
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Prune																			
	MTS				0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Other (specify)																			
					0.0		0.0		0.0		0.0		-		-		-		-
needs					0.0		0.0		0.0		0.0		-		-		-		-
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-
Program Total				0.0	0.0	0.0	0.0	1.2	1.2	0.0	0.0	75	75	-	-	-	-	-	-
FOREST HEALTH ENH																			
Survey																			
Space																			
					0.0		0.0		0.0		0.0		-		-		-		-
Prune																			
	MTS	4	X		0.0		0.0		0.0		0.0	30	30		-		-		-
Other (specify)																			
					0.0		0.0		0.0		0.0		-		-		-		-
Program Total				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30	30	-	-	-	-	-	-
GRAND TOTAL				0.0	0.0	0.0	0.0	3.2	3.2	0.0	0.0	120	120	-	-	-	-	-	-

Activity	Strategy Reference	Priority	Habitat Outcome (Describe)	Additional Decision Criteria: Legal Obl'n?	Probability H-M-L	Biological Window?	First Nations	Other	Regional Rank: Intra - Program Rank	X - Prog Rank (Optional)	Comments
BACKLOG REFORESTA											
Survey											
obligation	Gen	1		X	H	X					Legal obligation.
Other (spec	Gen	1									Backlog areas/impeded areas.
needs	Gen	1									
Subtot											
Site Prep											
Subtot											
Plant/Fill Plant											
Seed Seeding											
Subtot											
Brush											
obligation	LT1	2		X	H	X					Legal obligation.
Other (spec	LT1	2			H	X					Impeded area.
needs											
Subtot											
Space (Max. Density)											
needs											
Subtot											
Other (specify)											
Subtot											
Program Total											
FOREST RESTORATIO											
Survey											
Rehabilitate											
Plant/Fill Plant											
Brush											
Other (specify)											
Program Total											
STAND TENDING											
Survey											
	Gen	1									
Subtot											
Space					H	X					75
Subtot											
Fertilize											
Subtot											
Prune											
	MT5										
Subtot											
Other (specify)											
needs											Funding for SMP's and layout
Subtot											
Program Total											
FOREST HEALTH ENHA											
Survey											
Space											
Prune											
	MT 9	4			H	X					Pruning white pine to reduce blister rust.
Other (specify)											
Program Total											
GRAND TOTAL											

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							Region Total	6,092,445	4,918,311		100.7	77.9
							Management Unit Total	107,865	107,865		1.6	1.6
Activity	Strategy Reference	Priority	Program Adj. Factor	Proposed Treatment Area - (ha's) Year (starting fiscal 2002/03) 1	1 - Adj	2	3	Cost and Jobs - Year 1 Only: Unit Cost ($)	Year 1 Cost ($)	Yr 1 Adjusted Cost ($)	Unit Jobs (days/ha)	Yr 1 Jobs (p/y)	Yr 1 Adj Jobs (p/y)
BACKLOG REFORESTATION													
Survey								31			0.1		
obligation			1	290	290	250	250		8,990	8,990		0.1	0.1
Other (specify)			1		-				-	-		-	-
needs			0		-				-	-		-	-
Subtot				290	290	250	250		8,990	8,990		0.1	0.1
Site Prep								990			2.2		
			1		-				-	-		-	-
			1		-				-	-		-	-
			0		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Plant/Fill Plant								870			3.0		
obligation			1	25	25	20	10		21,750	21,750		0.3	0.3
other			1		-				-	-		-	-
needs			0		-				-	-		-	-
Seed/Seedling			1	15,000	15,000			0.30	4,500	4,500	0.001	0.1	0.1
Subtot				25	25	20	10		26,250	26,250		0.4	0.4
Brush								620			2.6		
obligation			1	57	57	80	70		35,340	35,340		0.7	0.7
other			1		-				-	-		-	-
needs			0		-				-	-		-	-
Subtot				57	57	80	70		35,340	35,340		0.7	0.7
Space (Max. Density)								690			3.2		
			1		-				-	-		-	-
			0		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Other (specify)													
			1		-	40	40	1,000	-	-		-	-
			0		-				-	-		-	-
Subtot									-	-		-	-
Program Total									70,580	70,580		1.2	1.2
FOREST RESTORATION													
Survey													
			1		-			31	-	-	0.1	-	-
Rehabilitate													
			1		-			990	-	-	2.2	-	-
Plant/Fill Plant													
			1		-			870	-	-	3.0	-	-
Brush													
			1		-			620	-	-	2.6	-	-
Other (specify)													
			1		-				-	-		-	-
Program Total									-	-		-	-
STAND TENDING													
Survey								31			0.1		
			1	45	45	50	50		1,395	1,395		0.0	0.0
study			1	50	50	50	50		1,550	1,550		0.0	0.0
needs			0		-				-	-		-	-
Subtot				95	95	100	100		2,945	2,945		0.0	0.0
Space								690			3.2		
			1	10	10	50	100		6,900	6,900		0.1	0.1
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				10	10	50	100		6,900	6,900		0.1	0.1
Fertilize								290			0.7		
			1		-				-	-		-	-
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				-	-	-	-		-	-		-	-
Prune								620			3.3		
			1	12	12	25	25		7,440	7,440		0.2	0.2
			1		-				-	-		-	-
			1		-				-	-		-	-
Subtot				12	12	25	25		7,440	7,440		0.2	0.2
Other (specify)													
Habitat			1	20	20			1,000	20,000	20,000		-	-
			0	-	-				-	-		-	-
Subtot				20	20	-	-		20,000	20,000		-	-
Program Total									37,285	37,285		0.4	0.4
FOREST HEALTH ENHANCEM													
Survey													
			1		-			31	-	-	0.1	-	-
Space													
			1		-			690	-	-	3.2	-	-
Prune													
			1		-			620	-	-	3.3	-	-
Other (specify)													
			1		-				-	-		-	-
Program Total									-	-		-	-
GRAND TOTAL									107,865	107,865		1.6	1.6

Rgn Tot			0.0	0.0	0.0	0.0	257.0	257.0	215.8	215.8	1,591	1,591	-	-	-	-	-	-		
MU Tot			0.0	0.0	0.0	0.0	8.4	8.4	0.0	0.0	22	22	-	-	-	-	-	-		
Activity			Stand level outcome of Year 1 activity																	
				Timber quantity outcome (000's m3, by time period)									Timber quality outcome (# ha, by % change in stand value)							
Activity	Strategy Reference	Priority	Maintain BaseCase	yr 1-20	yr 1-20 Adj	yr 21-50	yr 21-50 Adj	yr 51-100	yr 51-100 Adj	yr 100+	yr 100+ Adj	1-20%	1-20% Adj	21-40%	21-40% Adj	41-60%	41-60% Adj	>60%	>60% Adj	
BACKLOG REFOREST																				
Survey																				
obligation																				
Other (specify)																				
needs																				
Subtot																				
Site Prep					0.0		0.0		0.0		0.0									
					0.0		0.0		0.0		0.0									
					0.0		0.0		0.0		0.0									
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0									
Plant/Fill Plant																				
obligation			X		0.0		0.0	6.6	6.6		0.0									
other					0.0		0.0		0.0		0.0									
needs					0.0		0.0		0.0		0.0									
Seed/Seedling																				
Subtot				0.0	0.0	0.0	0.0	6.6	6.6	0.0	0.0									
Brush																				
obligation					0.0		0.0	1.7	1.7		0.0		-		-		-		-	
other					0.0		0.0		0.0		0.0		-		-		-		-	
needs					0.0		0.0		0.0		0.0		-		-		-		-	
Subtot				0.0	0.0	0.0	0.0	1.7	1.7	0.0	0.0	-	-	-	-	-	-	-	-	
Space (Max. Density)					0.0		0.0		0.0		0.0		-		-		-		-	
					0.0		0.0		0.0		0.0		-		-		-		-	
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-	
Other (specify)					0.0		0.0		0.0		0.0		-		-		-		-	
					0.0		0.0		0.0		0.0		-		-		-		-	
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-	
Program Total				0.0	0.0	0.0	0.0	8.3	8.3	0.0	0.0	-	-	-	-	-	-	-	-	
FOREST RESTORATIO																				
Survey																				
Rehabilitate					0.0		0.0		0.0		0.0									
Plant/Fill Plant					0.0		0.0		0.0		0.0									
Brush					0.0		0.0		0.0		0.0		-		-		-		-	
Other (specify)					0.0		0.0		0.0		0.0		-		-		-		-	
Program Total				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-	
STAND TENDING																				
Survey																				
study																				
needs																				
Subtot																				
Space					0.0		0.0	0.2	0.2		0.0	10	10		-		-		-	
					0.0		0.0		0.0		0.0		-		-		-		-	
					0.0		0.0		0.0		0.0		-		-		-		-	
Subtot				0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	10	10	-	-	-	-	-	-	
Fertilize					0.0		0.0		0.0		0.0		-		-		-		-	
					0.0		0.0		0.0		0.0		-		-		-		-	
					0.0		0.0		0.0		0.0		-		-		-		-	
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-	
Prune					0.0		0.0		0.0		0.0	12	12		-		-		-	
					0.0		0.0		0.0		0.0		-		-		-		-	
					0.0		0.0		0.0		0.0		-		-		-		-	
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	-	-	-	-	-	-	
Other (specify)																				
Habitat					0.0		0.0		0.0		0.0		-		-		-		-	
					0.0		0.0		0.0		0.0		-		-		-		-	
Subtot				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-	
Program Total				0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	22	22	-	-	-	-	-	-	
FOREST HEALTH ENH																				
Survey																				
Space					0.0		0.0		0.0		0.0		-		-		-		-	
Prune					0.0		0.0		0.0		0.0		-		-		-		-	
Other (specify)					0.0		0.0		0.0		0.0		-		-		-		-	
Program Total				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-	
GRAND TOTAL				0.0	0.0	0.0	0.0	8.4	8.4	0.0	0.0	22	22	-	-	-	-	-	-	

Activity	Strategy Reference	Priority	Habitat Outcome (Describe)	Additional Decision Criteria: Legal Obl'n?	Probability H-M-L	Biological Window?	First Nations	Other	Regional Rank: Intra - Program Rank	X - Prog Rank (Optional)	Comments
BACKLOG REFORESTA											
Survey											
obligation											
Other (specify)											
needs											
Subtot											
Site Prep											
Subtot											
Plant/Fill Plant											
obligation											
other											
needs											
Seed/Seedling											
Subtot											
Brush											
obligation											
other											
needs											
Subtot											
Space (Max. Density)											
Subtot											
Other (specify)			X								Possible Caribou habitat enhancement
Subtot											
Program Total											
FOREST RESTORATIO											
Survey											
Rehabilitate											
Plant/Fill Plant											
Brush											
Other (specify)											
Program Total											
STAND TENDING											
Survey											
study			X		M						Possible Caribou Habitat enhancement
needs											
Subtot											
Space											
Subtot											
Fertilize											
Subtot											
Prune											
Subtot											
Other (specify)											
Habitat			X		M						Possible Caribou Habitat enhancement
Subtot											
Program Total											
FOREST HEALTH ENH											
Survey											
Space											
Prune											
Other (specify)											
Program Total											
GRAND TOTAL											

Resource Management Plan

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							Region Total	6,092,445	4,918,311		100.7	77.9	Rgn To		
							Management Unit Total	-	-		-	-	MU Tot		
Activity				Proposed Treatment Area - (ha's)				Cost and Jobs - Year 1 Only						Stand	
Activity	Strategy Reference	Priority	Program Adj. Factor	Year (starting fiscal 2002/03)				Unit Cost	Year 1 Cost	Yr 1 Adjusted Cost	Unit Jobs	Yr 1 Jobs	Yr 1 Adj Jobs	Maintain BaseCase	
				1	1 - Adj	2	3	($)	($)	($)	(days/ ha)	(p/y)	(p/y)		
BACKLOG REFORESTATION															
Survey								31			0.1				
			1		-				-	-		-	-		
			1		-				-	-		-	-		
			1		-				-	-		-	-		
Subtot				-	-	-	-		-	-		-	-		
Site Prep								990			2.2				
			1		-				-	-		-	-		
			1		-				-	-		-	-		
			1		-				-	-		-	-		
Subtot				-	-	-	-		-	-		-	-		
Plant/Fill Plant								870			3.0				
			1		-				-	-		-	-		
			1		-				-	-		-	-		
			1		-				-	-		-	-		
Seed/Seedling			1		-			0.30	-	-	0.001	-	-		
Subtot				-	-	-	-		-	-		-	-		
Brush								620			2.6				
			1		-				-	-		-	-		
			1		-				-	-		-	-		
			1		-				-	-		-	-		
Subtot				-	-	-	-		-	-		-	-		
Space (Max. Density)								690			3.2				
			1		-				-	-		-	-		
			1		-				-	-		-	-		
Subtot				-	-	-	-		-	-		-	-		
Other (specify)															
			1		-				-	-		-	-		
			1		-				-	-		-	-		
Subtot									-	-		-	-		
Program Total									-	-		-	-		
FOREST RESTORATION															
Survey															
			1		-			31	-	-	0.1	-	-		
Rehabilitate															
			1		-			990	-	-	2.2	-	-		
Plant/Fill Plant															
			1		-			870	-	-	3.0	-	-		
Brush															
			1		-			620	-	-	2.6	-	-		
Other (specify)															
			1		-				-	-		-	-		
Program Total									-	-		-	-		
STAND TENDING															
Survey								31			0.1				
			1		-				-	-		-	-		
			1		-				-	-		-	-		
			1		-				-	-		-	-		
Subtot				-	-	-	-		-	-		-	-		
Space								690			3.2				
			1		-				-	-		-	-		
			1		-				-	-		-	-		
			1		-				-	-		-	-		
Subtot				-	-	-	-		-	-		-	-		
Fertilize								290			0.7				
			1		-				-	-		-	-		
			1		-				-	-		-	-		
			1		-				-	-		-	-		
Subtot				-	-	-	-		-	-		-	-		
Prune								620			3.3				
			1		-				-	-		-	-		
			1		-				-	-		-	-		
			1		-				-	-		-	-		
Subtot				-	-	-	-		-	-		-	-		
Other (specify)															
			1		-				-	-		-	-		
			1		-				-	-		-	-		
Subtot				-	-	-	-		-	-		-	-		
Program Total									-	-		-	-		
FOREST HEALTH ENHANCEM															
Survey															
			1		-			31	-	-	0.1	-	-		
Space															
			1		-			690	-	-	3.2	-	-		
Prune															
			1		-			620	-	-	3.3	-	-		
Other (specify)															
			1		-				-	-		-	-		
Program Total									-	-		-	-		
GRAND TOTAL									-	-		-	-		

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Activity	Strategy Reference	Priority	Probability H-M-L	Biological Window?	First Nations	Other	Regional Rank: Intra - Program Rank	Regional Rank: X - Prog Rank (Optional)	Comments
BACKLOG REFORESTA									
Survey									
Subtot									
Site Prep									
Subtot									
Plant/Fill Plant									
Seed/Seedling									
Subtot									
Brush									
Subtot									
Space (Max. Density)									
Subtot									
Other (specify)									
Subtot									
Program Total									
FOREST RESTORATION									
Survey									
Rehabilitate									
Plant/Fill Plant									
Brush									
Other (specify)									
Program Total									
STAND TENDING									
Survey									
Subtot									
Space									
Subtot									
Fertilize									
Subtot									
Prune									
Subtot									
Other (specify)									
Subtot									
Program Total									
FOREST HEALTH ENHA									
Survey									
Space									
Prune									
Other (specify)									
Program Total									
GRAND TOTAL									

TABLE 2 - Regional Watershed Unit Summary

Region: Nelson	Number of Watershed Units
Key watershed units that are Category I	81
Key watershed units that are Category II	3
Key watershed units that are Category IIB	0
Key watershed units that are Category III	11
Key watershed units that are Category IV	1
Key watershed units that are Category V	61
Number of Key Watershed Units (Sum of key categories I - V)	157
Total Number of priority key watershed units	84
Total Number of watershed units (including key and non key)	287

Table 3 - Priority Status Summary of all Regional Watershed Units

MoF District	Watershed Unit			Regional priority for domestic water supply (VH, H, M)	Regional priority for fish (VH, H, M)	Existing Fish Species and Populations at Risk	Category II Issues (see note)	Priority Key Watershed for Region (Y/N)	MYA # (for Ws units with active projects)	Name(s) of Implementing Partners
	Name	Subunit Name (Optional)	Number (Optional)							
Arrow	Wilson/Bremner		SLOC_O5000002	M	H			Y	200	
Arrow	Caribou Cr.		LARL_O4000003	VH	VH			Y	200	
Arrow	Kuskanex Cr.		UARL_0400016	VH	VH			Y	200	
Arrow	Ladybird		AR_28	VH	H			Y	212/205	
Arrow	Wilkie Creek		DUNC_03000022	VH	H			Y	204	
Arrow	Mosquito Creek		UARL_04000018	M	VH			Y	204	
Arrow	Eagle		AR_8	M	H			Y	208	
Columbia	Akolkolex		UARL_050000004	M	H			Y	215	
Columbia	Esplande		CLRH_05000002	M	H			Y	207	
Columbia	Sullivan		CLRH_05000002	M	H			Y	207	
Columbia	Jordan River		REVL_040000019	M	H			Y	214	
Columbia	No Name		RV_25	M	H			Y	204	
Kootenay L.	Upper Priest		KL_32	VH	VH			Y	210	
Kootenay L.	Blewett		KL_23	VH	H			Y	212/205	
Kootenay L.	Trout Lake		KL_8	M	H			Y	209	
Kootenay L.	Coffee Creek		KL_15	M	H			Y	209	
Kootenay L.	Duck Creek		KL_31	H	M			Y	213	
Kootenay L.	Powder/Akokli Creek		KL_16	H	M			Y	213	
Kootenay L.	Kitchener		KOTL_04000019	VH	H			Y	203	
Invermere	White River		IN_36	M	VH			Y	201	
Invermere	Forster/Francis		COLR05000002	VH	M			Y	201	
Cranbrook	Joseph Creek		CB_25	VH	VH			Y	952	
Cranbrook	Matthew Creek		SMAR_04000011	VH	VH			Y	203	
Cranbrook	Bighorn		ELKR_05000005	M	VH			Y	203	
Invermere	Lussier		SMAR_05000003	M	VH			Y	203	
Boundary	Overton/Moody		BD_8	H	M			Y	211	
Boundary	Tuzo		BD_5	M	VH			Y	211	
Boundary	Boundary		KETL_04000014*	M	H			Y	211	

Table 4 - Project Status Summary for Watershed Units

Watershed Unit			Overview Assessment			Watershed Restoration Plan		Prescriptions			Major Works			Effectiveness Evaluation		
Name	Subunit name	Number	Upslope	Riparian	In-Stream	Interim	Full	Upslope	Riparian	In-Stream	Upslope	Riparian	In-Stream	Upslope	Riparian	In-Stream
Gold/Bachelor	Gold	CLRH05000015	16	16	16	Yes					200	40	20			
	Bachelor		16	30	30	Yes					360	40	20			
Esplande		GD18	15	5	5	Yes					170	15	15			
Coffe Creek	Coffee	KL 18	15	5	5	Yes		8			20					
	Woodbury		25	5	10	Yes		10			20					
	Lendrum		13	5	5	Yes		8			35					
Trout Lake	hamson, Benson,	KL8	90	10	10	Yes					40					
	Laughton, etc		5		5	Yes		10			25					
Wilson	Wilson	SLOC05000002	50	5	10	Yes				40						
	Harlow		10			Yes										
	Fitzstubbs				5	Yes		20								
	Bremner		5		5	Yes										
	Ranch				5	Yes					15					
	Hamling		5			Yes										
	Monitor					Yes		15								
Deer/Ladybird/Cayu	Syringa	AR-28				Yes										
	Deer				30	Yes							25			
	Cayuse		5	5	60	Yes					5					
	Little Cayuse		5	5	20	Yes										
	Ladybird		50	8	15	Yes					125	14	25			
Lussier		SMAR_050003	40	75	180	Yes		20		100	120	494	200			
Matthew		SMAR04000011	42	8	6	Yes		20		20	100	115	50			
Gold/Joseph	Gold	CB25	10	5	14	Yes						29	19			
	Joseph		3	10	11	Yes						18	37			
Caribou	Rodd, etc	LARL_04000003	5	5	10	Yes										
	Walton, etc				7	Yes							10			
	Upper Caribou					Yes										
	Lower Caribou		2	2	2	Yes		10								
	Londonderry				4	Yes										
	Goat canyon					Yes		3								
Kuskanax	Gardner	UARL_0400016	7	7	6	Yes										
	Raven				2	Yes		5								
	Lower residual				2	Yes		20								
	Benton				2	Yes		10								
	Upper residual				2	Yes		5			40					
	Upper Kuskanax					Yes										
	Friedenberger				2	Yes		2								
Bayonne/Upper Prie	Bayonne	KL_32		5	5	Yes		30					3			
	Boundary/Upper Priest					Yes			15	5			7			

Table 5 - Identification of Effectiveness Evaluation Needs for WRP

Region: Nelson

Effectiveness Evaluation Issue & Potential Benefits	Type of Effectiveness Evaluation			Category (1, 2, 3)	Estimated 2002-03 Funding required ($)	Estimated Term of evaluation (years)
	Routine	Intensive	Operational Techniques Refinement			

Appendix 4 a) - Species & Stocks of Concern in the Kootenay Region (Including Boundary Forest District)

SpeciesID	Species Code	Species	Species Location(s)	Rational
1	BT	Bull Trout	Throughout the Region	Blue listed species
6	BB	Burbot	Kootenay Lake, Kootenay River, Columbia River between Keenleyside Dam and US-Canada border, Columbia Lake, Koocanusa, Moyie Lake, Christina Lake	Columbia River and Kootenay Lake burbot populations have declined severely and are currently being reviewed for red listing. A petition for ESA listing of Kootenay burbot (same population as Kootenay Lake) is expected in Idaho this fall. All fisheries for these populations collapsed and are now closed. Intensive studies and rehabilitation efforts are presently underway.
13	CMC	Chiselmouth	Kettle River below Cascade	Blue listed species
8	KO	Kokanee	Grave Lake, Upper and Lower Arrow Reservoir, West Arm of Kootenay Lake (Redfish, Kokanee, Harrop, Lasca, Duhamel, Laird, and Sitkum creeks), Christina Lake and Tributaries	Grave Lake - Unique Shoal spawning kokanee. Arrow kokanee stocks have collapsed due to a decrease in lake productivity caused from dam development. A five year experimental lake fertilization project commenced in spring 1999 to increase lake productivity and kokanee. West Arm kokanee are a unique stock which only inhabit the West Arm of Kootenay Lake and are different (i.e., size & age at spawning) from North and South Arm kokanee. Production of this stock is primarily from two spawning channels constructed in Redfish and Kokanee creeks, with other important but limited spawning in a number of other tributaries to the West Arm which are listed in the species location(s). These fish support an extremely unique and popular fishery in the West Arm.
11	LMB	Large Mouth Bass	Duck Lake near Creston, Christina Lake	Unique stock to the West Kootenay. Quality fishery (international destination fishery).

Appendix 4 a) - Species & Stocks of Concern in the Kootenay Region (Including Boundary Forest District)

2	CBA	Mottled Sculpin	Flathead River, Kootenay River above South Slocan Dam, Kootenay River below Slocan River, Columbia River between Keenleyside Dam and US-Canada border, Kettle River below Cascade	Blue listed species
9	RB	Rainbow Trout	Kootenay Lake and Lardeau River, Goatskin Creek	Unique world famous large rainbow from Kootenay Lake. Stock supports a fishery in KL worth over$2 million per year. Goatskin population may be glacial relict due to no headwater stocking and downstream barriers.
3	CCN	Shorthead Sculpin	Slocan River, Columbia River between Keenleyside Dam and US-Canada border, Norns Creek, Blueberry Creek, Kettle River below Cascade.	Blue listed species
14	SDC	Speckled Dace	Kettle River, W. Kettle River and Granby River	Red listed species. BCCDC recommends protection of habitat for this unique population.
5	UDC	Umatilla Dace	Kootenay River below Brilliant Dam, Slocan Pool, Slocan River at Kootenay River, Kootenay River above South Slocan Dam, Pend d'Oreille River, Columbia River between Keenleyside Dam and US-Canada border, China Creek, Beaver Creek, Blueberry Creek, Kettle River below Cascade.	Red listed species
12	WCT	Westslope Cutthroat Trout	Akolkolex River & Kirkup Creek	Unique because they are the only river resident stock in the West Kootenay supporting considerable effort as a catch-and-release fishery. High commercial and recreational value. Also, they are an endemic population that hasn't been hybridized with RB.

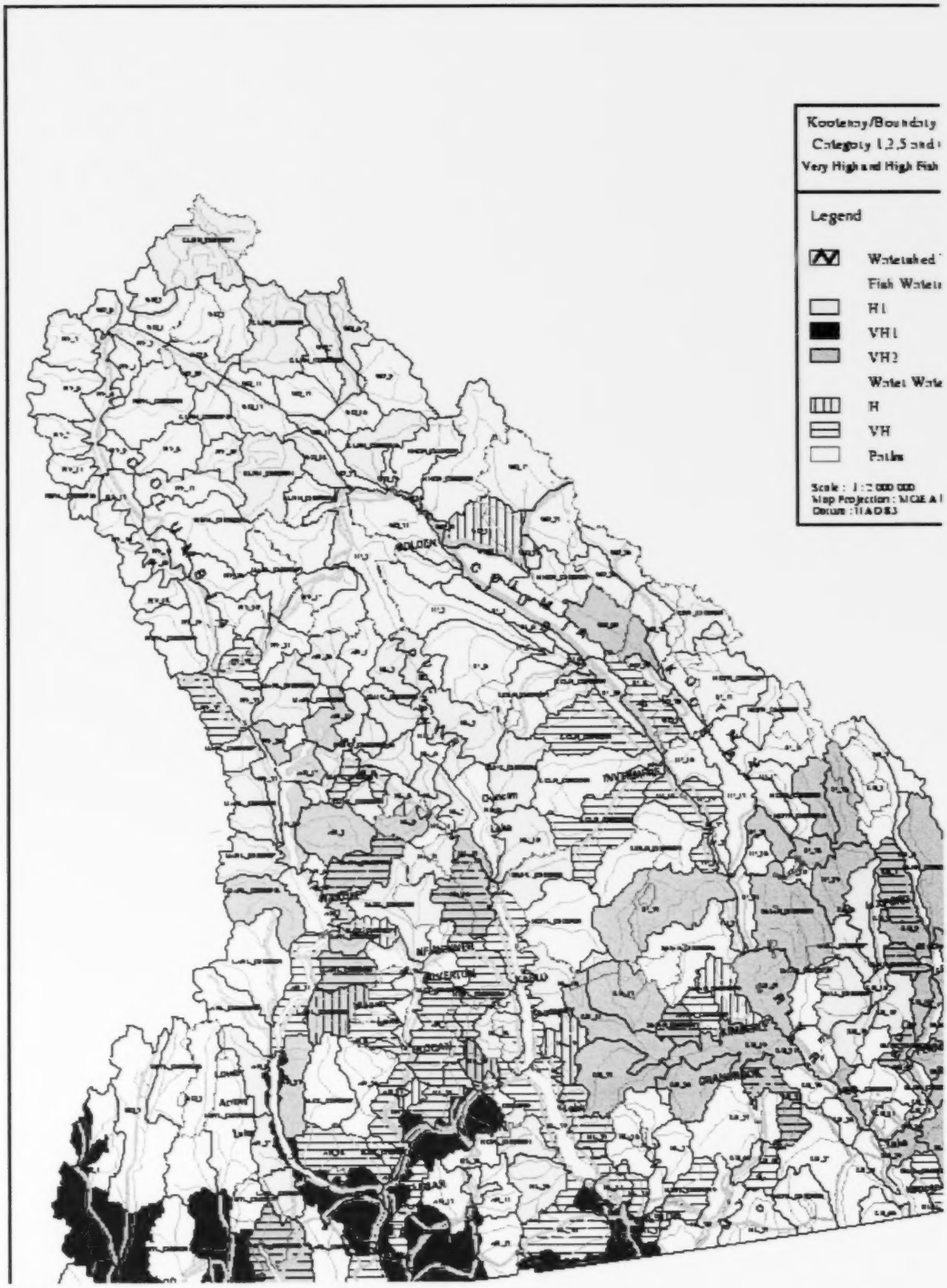
Appendix 4 a) - Species & Stocks of Concern in the Kootenay Region (Including Boundary Forest District)

10 WCT	Westslope Cutthroat Trout	East Kootenays	High commercial and recreational value. Also, their traditional range is rapidly disappearing in the USA
4 WSG	White Sturgeon	Kootenay Lake, Duncan Reservoir, Slocan Lake, Arrow Reservoir, Revelstoke Reservoir, Kootenay, Columbia, Pend d'Oreille Rivers, unconfirmed reports for Christina Lake	Red listed species
7 RB	Yellow-Fin Rainbow Trout	Arrow Reservoir	Unique large rainbow trout native only to Arrow Reservoir. Impacts of dam development has resulted in this stock being close to extinction. Attempts have and are being made to collect enough fish to start a hatchery brood program.

Appendix 4c – Fish and Water Ranking Description

Fish Rank Code	Description
VH1	Contains endangered, threatened species or stocks (Red Listed Species).
VH2	Contains two or more species/stocks of concern AND provides or contributes to a significant commercial and/or recreational fishery
H1	Contains one species/stocks of concern AND provides or contributes to a significant commercial and/or recreational fishery
H2	Contains one or more species/stocks of concern, BUT does not provide or contribute to a significant commercial and/or recreational fishery
M	Contains no species/stocks of concern

Water Rank Code	Description
VH	Forest Practices Code community watersheds
H	Significant domestic water-supply watersheds (>15 licenses)
M	Other domestic water supply watersheds
L	No community or domestic watershed


Kootenay/Boundary
Legend
Watershed
Fish Waters
H1
VH1
VH2
H
VH
Parks
GOLDEN
INVERMERE
NELSON
CRANBROOK

Kootenay/Boundary
Category 1,2,5 and
Very High and High Fish
Legend
Watershed
Fish Water
H
VH1
VH2
Water Wate
H
VH
Parks
Scale 1:2,000,000
Map Projection: NAD83
Datum: NAD83

Kootenay/Boundary
20% Target Wa
Legend
Watershed
Fish Water
H1
VH1
VH2
Water Wate
H
VH
Paths
Scale : 1 : 2 000 000
Map Projection : NAD83
Datum : NAD83

Kootenay/Boundary
20% Target Wa
Legend
Watershed
Fish Water
H1
VH1
VH2
Water Wate
H
VH
Parks
Scale : 1 : 2 000 000
Map Projection : NAD 83
Datum : NAD83

Fiscal Year = 2002/03	AAC		Cost and Jobs - Year 1 Only						Stand level outcome of Year 1 activity										Stand level outcome of Year 1 activity									
Forest District / Management Unit									Timber quantity outcome (000's m3)										Timber quality outcome (# ha, by % change in stand value)									
	m3/yr	% of Region Total	Cost ($)	%	Adjusted Cost ($)	%	Jobs (job/y)	Adjusted Jobs (job/y)	yr 1-20	yr 1-20 Adj	yr 21-50	yr 21-50 Adj	yr 51-100	yr 51-100 Adj	yr 100+	yr 100+ Adj	Total	Total Adj	1-20%	1-20% Adj	21-40%	21-40% Adj	41-60%	41-60% Adj	>60%	>60% Adj	Total	Total Adj
ARROW FD																												
ARROW TSA	550,000	10	461,590	8	461,590	9	8.0	8.0	-	-	-	-	11	11	32	32	43	43	131	131	-	-	-	-	-	-	131	131
TFL 3 - Slocan FP	80,000	1	171,510	3	171,510	3	2.7	2.7	-	-	-	-	23	23	-	-	23	23	-	-	-	-	-	-	-	-	-	-
TFL 23 - Pope & Talbot	680,000	12	532,965	9	532,965	11	6.9	6.9	-	-	-	-	3	3	-	-	3	3	120	120	-	-	-	-	-	-	120	120
		-		-		-																						
DISTRICT TOTAL	1,310,000	24	1,166,065	19	1,166,065	24	17.6	17.6	-	-	-	-	37	37	32	32	69	69	251	251	-	-	-	-	-	-	251	251
BOUNDARY FD																												
BOUNDARY TSA	700,000	13	570,789	9	422,789	9	11.0	8.1	-	-	-	-	10	10	44	44	54	54	173	173	-	-	-	-	-	-	173	173
TFL 8 - Pope & Talbot	145,000	3	198,600	3	198,600	4	3.3	3.3	-	-	-	-	2	2	56	56	56	56	-	-	-	-	-	-	-	-	-	-
		-		-		-																						
		-		-		-																						
DISTRICT TOTAL	845,000	16	769,389	13	621,389	13	14.4	11.5	-	-	-	-	12	12	99	99	111	111	173	173	-	-	-	-	-	-	173	173
COLUMBIA FD																												
GOLDEN TSA	530,000	10	415,137	7	362,737	7	7.7	6.5	-	-	-	-	12	12	4	4	16	16	16	16	-	-	-	-	-	-	16	16
REVELSTOKE TSA	230,000	4	267,310	4	186,310	4	5.2	3.5	-	-	-	-	5	5	-	-	5	5	33	33	-	-	-	-	-	-	33	33
TFL 55 - Evans FP	100,000	2	107,865	2	107,865	2	1.6	1.6	-	-	-	-	8	8	-	-	8	8	22	22	-	-	-	-	-	-	22	22
TFL 56 - Columbia CFC	100,000	2	199,150	3	152,100	3	3.3	2.6	-	-	-	-	8	8	-	-	8	8	30	30	-	-	-	-	-	-	30	30
DISTRICT TOTAL	960,000	18	989,462	16	809,012	16	17.7	14.1	-	-	-	-	33	33	4	4	37	37	101	101	-	-	-	-	-	-	101	101
CRANBROOK FD																												
CRANBROOK TSA	871,000	16	793,914	13	739,404	15	11.5	10.4	-	-	-	-	11	11	24	24	35	35	421	421	-	-	-	-	-	-	421	421
		-		-		-																						
		-		-		-																						
		-		-		-																						
DISTRICT TOTAL	871,000	16	793,914	13	739,404	15	11.5	10.4	-	-	-	-	11	11	24	24	35	35	421	421	-	-	-	-	-	-	421	421
INVERMERE FD																												
INVERMERE TSA	591,500	11	1,290,745	21	646,971	13	22.4	9.5	-	-	-	-	92	92	55	55	147	147	440	440	-	-	-	-	-	-	440	440
TFL 14 - Tembec	164,000	3	183,850	3	173,850	4	2.7	2.7	-	-	-	-	2	2	-	-	2	2	125	125	-	-	-	-	-	-	125	125
		-		-		-																						
		-		-		-																						
DISTRICT TOTAL	755,500	14	1,474,595	24	820,821	17	25.1	12.2	-	-	-	-	94	94	55	55	149	149	565	565	-	-	-	-	-	-	565	565
KOOTENAY LAKE FD																												
KOOTENAY LAKE TSA	700,000	13	899,020	15	761,620	15	14.4	12.2	-	-	-	-	70	70	2	2	72	72	80	80	-	-	-	-	-	-	80	80
		-		-		-																						
		-		-		-																						
		-		-		-																						
DISTRICT TOTAL	700,000	13	899,020	15	761,620	15	14.4	12.2	-	-	-	-	70	70	2	2	72	72	80	80	-	-	-	-	-	-	80	80
REGION																												
OTHER (Woodlots,Community FA's)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GRAND TOTAL	6,441,500	100	8,092,445	100	6,118,311	100	100.7	77.9	-	-	-	-	257	257	216	216	473	473	1,591	1,591	-	-	-	-	-	-	1,591	1,591

			Cost and Jobs - Year 1 Only						Stand level outcome of Year 1 activity										Stand level outcome of Year 1 activity									
									Timber quantity outcome (000's m3)										Timber quality outcome (# ha by % change in stand value)									
	m3/yr	% of Region Total	Cost ($)	%	Adjusted Cost ($)	%	Jobs (p/y)	Adjusted Jobs (p/y)	yr 1-20	yr 1-20 Adj	yr 21-50	yr 21-50 Adj	yr 51-100	yr 51-100 Adj	yr 100+	yr 100+ Adj	Total	Total Adj	1-20%	1-20% Adj	21-40%	21-40% Adj	41-60%	41-60% Adj	>60%	>60% Adj	Total	Total Adj
ARROW FD																												
ARROW TSA	550,000	10	461,590	8	461,590	9	8.0	8.0	-	-	-	-	11	11	32	32	43	43	131	131	-	-	-	-	-	-	131	131
TFL 3 - Slocan FP	80,000	1	171,510	3	171,510	3	2.7	2.7	-	-	-	-	23	23	-	-	23	23	-	-	-	-	-	-	-	-	-	-
TFL 23 - Pope & Talbot	680,000	12	532,965	9	532,965	11	6.9	6.9	-	-	-	-	3	3	-	-	3	3	120	120	-	-	-	-	-	-	120	120
DISTRICT TOTAL	1,310,000	24	1,166,065	19	1,166,065	24	17.6	17.6	-	-	-	-	37	37	32	32	69	69	251	251	-	-	-	-	-	-	251	251
BOUNDARY FD																												
BOUNDARY TSA	700,000	13	570,789	9	422,789	9	11.0	8.1	-	-	-	-	10	10	44	44	54	54	173	173	-	-	-	-	-	-	173	173
TFL 8 - Pope & Talbot	145,000	3	198,600	3	198,600	4	3.3	3.3	-	-	-	-	2	2	55	55	56	56	-	-	-	-	-	-	-	-	-	-
DISTRICT TOTAL	845,000	16	769,389	13	621,389	13	14.4	11.5	-	-	-	-	12	12	99	99	111	111	173	173	-	-	-	-	-	-	173	173
COLUMBIA FD																												
GOLDEN TSA	530,000	10	415,137	7	362,737	7	7.7	6.5	-	-	-	-	12	12	4	4	16	16	16	16	-	-	-	-	-	-	16	16
REVELSTOKE TSA	230,000	4	267,310	4	186,310	4	5.2	3.5	-	-	-	-	5	5	-	-	5	5	33	33	-	-	-	-	-	-	33	33
TFL 55 - Evans FP	100,000	2	107,865	2	107,865	2	1.6	1.6	-	-	-	-	8	8	-	-	8	8	22	22	-	-	-	-	-	-	22	22
TFL 56 - Columbia CFC	100,000	2	199,150	3	152,100	3	3.3	2.6	-	-	-	-	8	8	-	-	8	8	30	30	-	-	-	-	-	-	30	30
DISTRICT TOTAL	960,000	18	989,462	16	809,012	16	17.7	14.1	-	-	-	-	33	33	4	4	37	37	101	101	-	-	-	-	-	-	101	101
CRANBROOK FD																												
CRANBROOK TSA	871,000	16	793,914	13	739,404	15	11.5	10.4	-	-	-	-	11	11	24	24	35	35	421	421	-	-	-	-	-	-	421	421
DISTRICT TOTAL	871,000	16	793,914	13	739,404	15	11.5	10.4	-	-	-	-	11	11	24	24	35	35	421	421	-	-	-	-	-	-	421	421
INVERMERE FD																												
INVERMERE TSA	591,500	11	1,290,745	21	646,971	13	22.4	9.5	-	-	-	-	92	92	55	55	147	147	440	440	-	-	-	-	-	-	440	440
TFL 14 - Tembec	164,000	3	183,850	3	173,850	4	2.7	2.7	-	-	-	-	2	2	-	-	2	2	125	125	-	-	-	-	-	-	125	125
DISTRICT TOTAL	755,500	14	1,474,595	24	820,821	17	25.1	12.2	-	-	-	-	94	94	55	55	149	149	565	565	-	-	-	-	-	-	565	565
KOOTENAY LAKE FD																												
KOOTENAY LAKE TSA	700,000	13	899,020	15	761,620	15	14.4	12.2	-	-	-	-	70	70	2	2	72	72	80	80	-	-	-	-	-	-	80	80
DISTRICT TOTAL	700,000	13	899,020	15	761,620	15	14.4	12.2	-	-	-	-	70	70	2	2	72	72	80	80	-	-	-	-	-	-	80	80
REGION																												
OTHER (Woodlots,Community FA's)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GRAND TOTAL	5,441,500	100	6,092,445	100	4,918,311	100	100.7	77.9	-	-	-	-	257	257	216	216	473	473	1,591	1,591	-	-	-	-	-	-	1,591	1,591

Fiscal Year - 2002/03			Cost and Jobs - Year 1 Only						Stand level outcome of Year 1 activity										Stand level outcome of Year 1 activity											
Program		% of Region	Cost		Adjusted Cost		Jobs	Adjusted Jobs	Timber quantity outcome (000's m3)										Timber quality outcome (# ha, by % change in stand value)											
	m3/yr	Total	($)	%	($)	%	(p/y)	(p/y)	yr 1-20	yr 1-20 Adj	yr 21-50	yr 21-50 Adj	yr 51-100	yr 51-100 Adj	yr 100+	yr 100+ Adj	Total	Total Adj	1-20%	1-20% Adj	21-40%	21-40% Adj	41-60%	41-60% Adj	>60%	>60% Adj	Total	Total Adj
BACKLOG REFORESTATION																														
Timber Supply Areas			2,886,225	47	2,475,451	50	45.5	39.3	-	-	-	-	108	108	159	159	267	267	130	130	-	-	-	-	-	-	130	130
Tree Farm Licences			918,325	15	918,325	19	14.6	14.6	-	-	-	-	42	42	55	55	97	97	15	15	-	-	-	-	-	-	15	15
Other (Woodlots, Community FA's)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ALL Management Units			3,804,550	62	3,393,776	69	60.1	53.9	-	-	-	-	151	151	214	214	364	364	145	145	-	-	-	-	-	-	145	145
FOREST RESTORATION																														
Timber Supply Areas			258,750	4	258,750	5	1.8	1.8	-	-	-	-	7	7	-	-	7	7	-	-	-	-	-	-	-	-	-	-
Tree Farm Licences			40,100	1	30,100	1	0.2	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other (Woodlots, Community FA's)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ALL Management Units			298,850	5	288,850	6	1.9	1.9	-	-	-	-	7	7	-	-	7	7	-	-	-	-	-	-	-	-	-	-
STAND TENDING																														
Timber Supply Areas			1,528,730	25	822,420	17	32.6	16.7	-	-	-	-	96	96	-	-	96	96	1,144	1,144	-	-	-	-	-	-	1,144	1,144
Tree Farm Licences			404,975	7	357,925	7	5.1	4.3	-	-	-	-	4	4	-	-	4	4	252	252	-	-	-	-	-	-	252	252
Other (Woodlots, Community FA's)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ALL Management Units			1,933,705	32	1,180,345	24	37.7	21.0	-	-	-	-	99	99	-	-	99	99	1,396	1,396	-	-	-	-	-	-	1,396	1,396
FOREST HEALTH ENHANCEMENT																														
Timber Supply Areas			24,800	0	24,800	1	0.5	0.5	-	-	-	-	-	-	2	2	2	2	20	20	-	-	-	-	-	-	20	20
Tree Farm Licences			30,540	1	30,540	1	0.6	0.6	-	-	-	-	-	-	-	-	-	-	30	30	-	-	-	-	-	-	30	30
Other (Woodlots, Community FA's)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ALL Management Units			55,340	1	55,340	1	1.1	1.1	-	-	-	-	-	-	2	2	2	2	50	50	-	-	-	-	-	-	50	50
REGION TOTAL																														
Timber Supply Areas	4,172,500	77	4,698,505	77	3,581,421	73	80.3	58.2	-	-	-	-	211	211	161	161	372	372	1,294	1,294	-	-	-	-	-	-	1,294	1,294
Tree Farm Licences	1,269,000	23	1,393,940	23	1,336,890	27	20.4	19.7	-	-	-	-	46	46	55	55	101	101	297	297	-	-	-	-	-	-	297	297
Other (Woodlots, Community FA's)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GRAND TOTAL	5,441,500	100	6,092,445	100	4,918,311	100	100.7	77.9	-	-	-	-	257	257	216	216	473	473	1,591	1,591	-	-	-	-	-	-	1,591	1,591

			Cost and Jobs - Year 1 Only						Stand level outcome of Year 1 activity										Stand level outcome of Year 1 activity									
									Timber quantity outcome (000's m3)										Timber quantity outcome (# ha. by % change in stand value)									
	m3/yr	% of Region Total	Cost ($)	%	Adjusted Cost ($)	%	Jobs (p/y)	Adjusted Jobs (p/y)	yr 1-20	yr 1-20 Adj	yr 21-50	yr 21-50 Adj	yr 51-100	yr 51-100 Adj	yr 100+	yr 100+ Adj	Total	Total Adj	1-20%	1-20% Adj	21-40%	21-40% Adj	41-60%	41-60% Adj	>60%	>60% Adj	Total	Total Adj
BACKLOG REFORESTATION																												
Timber Supply Areas			2,886,225	47	2,475,451	50	45.5	39.3	-	-	-	-	108	108	159	159	267	267	130	130	-	-	-	-	-	-	130	130
Tree Farm Licences			918,325	15	918,325	19	14.6	14.6	-	-	-	-	42	42	55	55	97	97	15	15	-	-	-	-	-	-	15	15
Other (Woodlots, Community FA's)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ALL Management Units			3,804,550	62	3,393,776	69	60.1	53.9	-	-	-	-	151	151	214	214	364	364	145	145	-	-	-	-	-	-	145	145
FOREST RESTORATION																												
Timber Supply Areas			258,750	4	258,750	5	1.8	1.8	-	-	-	-	7	7	-	-	7	7	-	-	-	-	-	-	-	-	-	-
Tree Farm Licences			40,100	1	30,100	1	0.2	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other (Woodlots, Community FA's)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ALL Management Units			298,850	5	288,850	6	1.9	1.9	-	-	-	-	7	7	-	-	7	7	-	-	-	-	-	-	-	-	-	-
STAND TENDING																												
Timber Supply Areas			1,528,730	25	822,420	17	32.6	16.7	-	-	-	-	96	96	-	-	96	96	1,144	1,144	-	-	-	-	-	-	1,144	1,144
Tree Farm Licences			404,975	7	357,925	7	5.1	4.3	-	-	-	-	4	4	-	-	4	4	252	252	-	-	-	-	-	-	252	252
Other (Woodlots, Community FA's)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ALL Management Units			1,933,705	32	1,180,345	24	37.7	21.0	-	-	-	-	99	99	-	-	99	99	1,396	1,396	-	-	-	-	-	-	1,396	1,396
FOREST HEALTH ENHANCEMENT																												
Timber Supply Areas			24,800	0	24,800	1	0.5	0.5	-	-	-	-	-	-	2	2	2	2	20	20	-	-	-	-	-	-	20	20
Tree Farm Licences			30,540	1	30,540	1	0.6	0.6	-	-	-	-	-	-	-	-	-	-	30	30	-	-	-	-	-	-	30	30
Other (Woodlots, Community FA's)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ALL Management Units			55,340	1	55,340	1	1.1	1.1	-	-	-	-	-	-	2	2	2	2	50	50	-	-	-	-	-	-	50	50
REGION TOTAL																												
Timber Supply Areas	4,172,500	77	4,698,505	77	3,581,421	73	80.3	58.2	-	-	-	-	211	211	161	161	372	372	1,294	1,294	-	-	-	-	-	-	1,294	1,294
Tree Farm Licences	1,269,000	23	1,393,940	23	1,336,890	27	20.4	19.7	-	-	-	-	46	46	55	55	101	101	297	297	-	-	-	-	-	-	297	297
Other (Woodlots, Community FA's)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GRAND TOTAL	5,441,500	100	6,092,445	100	4,918,311	100	100.7	77.9	-	-	-	-	257	257	216	216	473	473	1,591	1,591	-	-	-	-	-	-	1,591	1,591

Current View:
ORIG

Program / Activity	Proposed Treatment Area (ha's)				Cost and Jobs						Stand level outcome of Year 1 activity															
	Year (starting fiscal 2002/03)				Year 1 Cost		Yr 1 Adjusted Cost		Yr 1 Jobs	Yr 1 Adj Jobs	Timber quantity outcome (000's m3, by time period)										Timber quality outcome (# ha, by % change in stand value)									
	1	1 - Adj	2	3	($)	%	($)	%	(p/y)	(p/y)	yr 1-20	yr 1-20 Adj.	yr 21-50	yr 21-50 Adj	yr 51-100	yr 51-100 Adj	yr 100+	yr 100+	Total	Total Adj	1-20%	1-20% Adj	21-40%	21-40% Adj	41-60%	41-60% Adj	>60%	>60% Adj	Total	Total Adj
BACKLOG REFORESTATION																														
Survey	25,620	16,466	21,250	17,983	804,670	21	520,896	15	11.6	7.5																				
Site Prep	130	110	90	65	172,980	5	144,980	4	1.3	1.1	-	-	-	-	-	-	-	-	-	-										
Plant	945	945	582	455	676,930	18	676,930	20	12.9	12.9	-	-	-	-	77	77	214	214	291	291										
Seed/Seedling (No. 000's)	427	427	15	55	128,100	3	128,100	4	1.9	1.9																				
Brush	2,489	2,339	2,126	1,959	1,651,420	43	1,552,420	46	29.4	27.6	-	-	-	-	58	58	-	-	58	58										
Space	145	145	225	170	109,200	3	109,200	3	2.1	2.1	-	-	-	-	16	16	-	-	16	16	145	145	-	-	-	-	-	-	145	145
Other	-	-	-	-	261,250	7	261,250	8	0.8	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total					3,804,550	100	3,253,776	100	60.1	53.9	-	-	-	-	151	151	214	214	364	364	145	145	-	-	-	-	-	-	145	145
RESTORATION																														
Survey	-	-	-	-	-	-	-	-	-	-																				
Rehabilitate	190	190	190	190	192,600	71	192,600	71	1.9	1.9	-	-	-	-	7	7	-	-	7	7										
Plant/Fill Plant	-	-	25	175	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-										
Brush	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-										
Other	240,500	240,500	240,000	240,000	79,500	29	79,500	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total					272,100	100	272,100	100	1.9	1.9					7	7			7	7										
STAND TENDING																														
Survey	3,395	3,395	4,950	4,750	116,045	6	116,045	10	1.5	1.5																				
Space	2,305	1,251	2,676	2,398	1,498,740	78	863,480	73	33.5	18.2	-	-	-	-	99	99	-	-	99	99	1,250	1,250	-	-	-	-	-	-	1,250	1,250
Fertilize	100	80	820	1,020	29,000	1	23,200	2	0.3	0.3	-	-	-	-	-	-	-	-	-	-	80	80	-	-	-	-	-	-	80	80
Prune	151	66	284	335	113,920	6	49,620	4	2.3	1.0	-	-	-	-	-	-	-	-	-	-	66	66	-	-	-	-	-	-	66	66
Other	1,577	1,277	1,485	535	176,000	9	128,000	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total					1,933,705	100	1,180,345	100	37.7	21.0					99	99			99	99	1,396	1,396							1,396	1,396
FOREST HEALTH ENHANCEMENT																														
Survey	780	780	420	420	24,340	44	24,340	44	0.4	0.4																				
Space	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prune	50	50	170	170	31,000	56	31,000	56	0.8	0.8	-	-	-	-	-	-	2	2	2	2	50	50	-	-	-	-	-	-	50	50
Other	-	-	-	121,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total					55,340	100	55,340	100	1.1	1.1							2	2	2	2	50	50							50	50
REGION TOTAL																														
GRAND TOTAL					6,065,695		4,901,561		100.7	77.9	-	-	-	-	257	257	216	216	473	473	1,591	1,591	-	-	-	-	-	-	1,591	1,591

Activity Summary	Proposed Treatment Area - (ha's)				Cost and Jobs						Stand level outcome of Year 1 activity															
	Year (starting fiscal 2002/03)				Year 1 Cost		Yr 1 Adjusted Cost		Yr 1 Jobs	Yr 1 Adj Jobs	Timber quantity outcome (000's m3, by time period)										Timber quality outcome (# ha, by % change in stand value)									
	1	1 - Adj	2	3	($)	%	($)	%	(p/y)	(p/y)	yr 1-20	yr 1-20 Adj.	yr 21-50	yr 21-50 Adj	yr 51-100	yr 51-100 Adj	yr 100+	yr 100+	Total	Total Adj	1-20%	1-20% Adj	21-40%	21-40% Adj	41-60%	41-60% Adj	>60%	>60% Adj	Total	Total Adj
Survey	29,795	20,641	26,620	23,153	945,055	16	661,281	13	13.5	9.4																				
Site Prep / Rehabilitate	320	300	280	255	365,580	6	337,580	7	3.2	3.0	-	-	-	-	7	7	-	-	7	7										
Plant / Fill Plant	945	945	607	630	676,930	11	676,930	14	12.9	12.9	-	-	-	-	77	77	214	214	291	291										
Seed/Seedling (No. 000's)	427	427	15	55	128,100	2	128,100	3	1.9	1.9																				
Brush	2,489	2,339	2,126	1,959	1,651,420	27	1,552,420	32	29.4	27.6	-	-	-	-	58	58	-	-	58	58										
Space	2,450	1,396	2,901	2,568	1,607,940	27	972,680	20	35.6	20.3	-	-	-	-	115	115	-	-	115	115	1,395	1,395	-	-	-	-	-	-	1,395	1,395
Fertilize	100	80	820	1,020	29,000	0	23,200	0	0.3	0.3	-	-	-	-	-	-	-	-	-	-	80	80	-	-	-	-	-	-	80	80
Prune	201	116	454	505	144,920	2	80,620	2	3.0	1.7	-	-	-	-	-	-	2	2	2	2	116	116	-	-	-	-	-	-	116	116
Other	242,077	241,777	241,485	361,535	516,750	9	468,750	10	0.8	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total					6,065,695	100	4,901,561	100	100.7	77.9					257	257	216	216	473	473	1,591	1,591							1,591	1,591

Current View:
ORIG

	Proposed Treatment Area (ha's)				Cost and Jobs						Stand level outcome of Year 1 activity																	
	Year (starting fiscal 2002/03)				Year 1 Cost		Yr 1 Adjusted Cost		Yr 1 Jobs	Yr 1 Adj Jobs	Timber quantity outcome (000's m3, by time period)										Timber quality outcome (# ha, by % change in stand value)									
	1	1 - Adj	2	3	($)	%	($)	%	(p/y)	(p/y)	yr 1-20	yr 1-20 Adj	yr 21-50	yr 21-50 Adj	yr 51-100	yr 51-100 Adj	yr 100+	yr 100+	Total	Total Adj	1-20%	1-20% Adj	21-40%	21-40% Adj	41-60%	41-60% Adj	>60%	>60% Adj	Total	Total Adj
BACKLOG REFORESTATION																												
Survey	25,620	16,466	21,250	17,983	804,670	21	520,896	15	11.6	7.5																		
Site Prep	130	110	90	65	172,980	5	144,980	4	1.3	1.1	-	-	-	-	-	-	-	-	-	-								
Plant	945	945	582	455	676,930	18	676,930	20	12.9	12.9	-	-	-	-	77	77	214	214	291	291								
Seed/Seedling (No. 000's)	427	427	15	55	128,100	3	128,100	4	1.9	1.9																		
Brush	2,489	2,339	2,126	1,959	1,651,420	43	1,552,420	46	29.4	27.6	-	-	-	-	58	58	-	-	58	58								
Space	145	145	225	170	109,200	3	109,200	3	2.1	2.1	-	-	-	-	16	16	-	-	16	16	145	145	-	-	-	-	-	-	145	145
Other	-	-	-	-	261,250	7	261,250	8	0.8	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total					3,804,650	100	3,393,776	100	60.1	53.9	-	-	-	-	151	151	214	214	364	364	145	145	-	-	-	-	-	-	145	145
RESTORATION																												
Survey	-	-	-	-	-	-	-	-	-	-																		
Rehabilitate	190	190	190	190	192,600	71	192,600	71	1.9	1.9	-	-	-	-	7	7	-	-	7	7								
Plant/Fill Plant	-	-	25	175	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
Brush	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
Other	240,500	240,500	240,000	240,000	79,500	29	79,500	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total					272,100	100	272,100	100	1.9	1.9	-	-	-	-	7	7	-	-	7	7	-	-	-	-	-	-	-	-	-	-
STAND TENDING																												
Survey	3,395	3,395	4,950	4,750	116,045	6	116,045	10	1.5	1.5																		
Space	2,305	1,251	2,676	2,398	1,498,740	78	863,480	73	33.5	18.2	-	-	-	-	99	99	-	-	99	99	1,250	1,250	-	-	-	-	-	-	1,250	1,250
Fertilize	100	80	820	1,020	29,000	1	23,200	2	0.3	0.3	-	-	-	-	-	-	-	-	-	-	80	80	-	-	-	-	-	-	80	80
Prune	151	66	284	335	113,920	6	49,620	4	2.3	1.0	-	-	-	-	-	-	-	-	-	-	66	66	-	-	-	-	-	-	66	66
Other	1,577	1,277	1,485	535	176,000	9	128,000	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total					1,933,705	100	1,180,345	100	37.7	21.0	-	-	-	-	99	99	-	-	99	99	1,396	1,396	-	-	-	-	-	-	1,396	1,396
FOREST HEALTH ENHANCEMENT																												
Survey	780	780	420	420	24,340	44	24,340	44	0.4	0.4																		
Space	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	50	50	-	-	-	-	-	-	50	50
Prune	50	50	170	170	31,000	56	31,000	56	0.8	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	121,000	-	-	-	-	-	-																				
Total					55,340	100	55,340	100	1.1	1.1	-	-	-	-	-	-	2	2	2	2	50	50	-	-	-	-	-	-	50	50
REGION TOTAL																												
GRAND TOTAL					6,065,695		4,901,561		100.7	77.9	-	-	-	-	257	257	216	216	473	473	1,591	1,591	-	-	-	-	-	-	1,591	1,591

	Proposed Treatment Area - (ha's)				Cost and Jobs						Stand level outcome of Year 1 activity																	
	Year (starting fiscal 2002/03)				Year 1 Cost		Yr 1 Adjusted Cost		Yr 1 Jobs	Yr 1 Adj Jobs	Timber quantity outcome (000's m3, by time period)										Timber quality outcome (# ha, by % change in stand value)									
	1	1 - Adj	2	3	($)	%	($)	%	(p/y)	(p/y)	yr 1-20	yr 1-20 Adj	yr 21-50	yr 21-50 Adj	yr 51-100	yr 51-100 Adj	yr 100+	yr 100+	Total	Total Adj	1-20%	1-20% Adj	21-40%	21-40% Adj	41-60%	41-60% Adj	>60%	>60% Adj	Total	Total Adj
Survey	29,795	20,641	26,620	23,153	945,055	16	661,281	13	13.5	9.4																		
Site Prep / Rehabilitate	320	300	280	255	365,580	6	337,580	7	3.2	3.0	-	-	-	-	7	7	-	-	7	7								
Plant / Fill Plant	945	945	607	630	676,930	11	676,930	14	12.9	12.9	-	-	-	-	77	77	214	214	291	291								
Seed/Seedling (No. 000's)	427	427	15	55	128,100	2	128,100	3	1.9	1.9																		
Brush	2,489	2,339	2,126	1,959	1,651,420	27	1,552,420	32	29.4	27.6	-	-	-	-	58	58	-	-	58	58								
Space	2,450	1,396	2,901	2,568	1,607,940	27	972,680	20	35.6	20.3	-	-	-	-	115	115	-	-	115	115	1,395	1,395	-	-	-	-	-	-	1,395	1,395
Fertilize	100	80	820	1,020	29,000	0	23,200	0	0.3	0.3	-	-	-	-	-	-	-	-	-	-	80	80	-	-	-	-	-	-	80	80
Prune	201	116	454	505	144,920	2	80,620	2	3.0	1.7	-	-	-	-	-	-	2	2	2	2	116	116	-	-	-	-	-	-	116	116
Other	242,077	241,777	241,485	361,535	516,750	9	468,750	10	0.8	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total					6,065,695	100	4,901,561	100	100.7	77.9	-	-	-	-	257	257	216	216	473	473	1,591	1,591	-	-	-	-	-	-	1,591	1,591

STRENGTHENING SUSTAINABLE FOREST MANAGEMENT (SSFM)

Request for Review of Draft Strategic SSFM Regional Issues
2002/03

Prepared by:
Kootenay/Boundary SSFM Regional Steering Committee
August 13, 2001

BACKGROUND

Forest Renewal B.C.'s (FRBC) five-year strategic plan for 1999-2004 is aimed at moving more towards sustainable forest management. For the Strengthening Sustainable Forest Management (SSFM) component this signifies a shift from operational level forest management to higher level strategic decision and planning processes around the Kootenay/Boundary Land Use Plan, Higher Level Plans and Timber Supply Reviews.

The SSFM objective is focused on two aspects of sustainable forest management: (1) maintenance of environmental values and (2) resource benefits (timber and non-timber). SSFM investments should provide forest resource managers with information about how management choices affect ecological processes and functions most at risk from strategic forest management decisions regionally and/or provincially. At the same time, support must be given to sustaining timber and related resources such as non-traditional forest products and ecotourism.

In the above context, the Kootenay/Boundary SSFM Steering Committee is responsible for identifying and defining key sustainable forest management issues for resolution within the SSFM strategic framework. The steering committee has representation from the ministries of Sustainable Resource Management and Forests as well as industry, FRBC and the environmental community. The main tasks of the committee are:

- to identify the most critical strategic issues for sustainable development in the region;
- to develop a strategy for addressing each strategic issue with respect to strategic planning and management;
- to create a proposed action plan for each strategic issue including (a)identification of specific projects or activities, timelines, rationale and benefits, cost and, (b) identification of performance indicators to valuate success;
- to collaborate with districts, stakeholders and environmental groups in finalizing the SSFM strategic issues and proposed strategies; and,
- to bring forward SSFM strategic issues and funding recommendations into the overall regional Resource Management Plan.

REQUEST FOR REVIEW AND COMMENT

In consideration of the information provided above, your participation is requested with the following:

1. **review and comment** on the SSFM strategic regional issues *draft* template reports prepared by the regional SSFM steering committee (bullet format acceptable). A complete set of the issue templates is provided in the second attachment accompanying this e-mail.

2. **evaluate regional SSFM issues and proposed strategies/activities** using evaluation criteria (*Appendix A*) and reporting table (*Appendix B*). The strategies and activities proposed to address each issue have been outlined for your review convenience. Again, additional detail can be found in the Issue templates referred to above.

3. **identify additional SSFM strategic knowledge/information needs** (where applicable) – Keeping in mind the strategic objectives of SSFM, identify and evaluate the *new* strategic issue(s) and associated strategies/activities within the evaluation table provided.

4. it is recommended that, if possible, **review and reporting be co-ordinated** between ministries, licensees and stakeholders

5. the timeline for completion is **September 5, 2001**. All comments should be forwarded in electronic format to Bernie Peschke (e-mail: Bernie.Peschke@gems1.gov.bc.ca)

NEXT STEPS

Following receipt of review comments from districts, licensees and stakeholders, the Kootenay/Boundary SSFM regional steering committee:

- will consolidate and document review comments by management unit (i.e., TSA and TFL);
- may revise SSFM regional issues templates based on review comments, additional submissions and within the strategic context provided by SSFM; and,
- will provide recommendations to FRBC of regional SSFM priority issues, activities/strategies and funding.

If you have any questions or require additional clarification, please do not hesitate to call Dennis Hamilton, SSFM Regional Contract Coordinator (352-4665); Bernie Peschke, MoF (354-6271); or, Kathy Eichenberger, MSRM (354-6349).

The Kootenay/Boundary SSFM Regional Steering Committee thanks you for your attention to this request.

Appendix A: Kootenay/Boundary SSFM Strategic Regional Issues Evaluation Criteria (apply to issue evaluations in *AppendixB*)

The major categories for consideration during evaluation of SSFM strategic issues and associated strategies/activities include:

- **URGENCY** – (timeframes for Kootenay/Boundary Land Use Plan, Higher Level Plan, Timber Supply Reviews)
- **BENEFITS** – (sustainability, reduction in uncertainty/risk to environment, increase in certainty about sustainability of harvest, scope of benefits (landscape unit/number of landscape units/regional/provincial), timeframe (immediate/long term), support)
- **PROBABILITY OF SUCCESS** – (timing, complexity, expertise required, obstacles, etc.)

Appendix B: Kootenay/Boundary SSFM draft Strategic Issue Evaluation

(no order of priority)

(use with evaluation criteria from *Appendix A* and details provided in strategies/activities section of the table. More detail on each issue can be found in the SSFM Issue Templates (*Attachment 2*))

District: ***Contact(s):***

SSFM Strategic Issue	Issue Evaluation Rating (H, M or L)[1]			Strategies/Activities	02/03 Est. $ needs (000)	Strategy/Activity Evaluation Rating (H, M or L)		
	Urgency	Benefits	Probability of Success			Urgency	Benefits	Probability of Success
#1 – Spatial Analysis				• Spatial base cases, Timber Supply Branch functionality checks, sensitivity tests and deployment choice reports will be completed for tier one Pilot management units (TFL 14 and 23 pilots).	285 (total)			
				• For tier two management units (Kootenay Lake and Invermere TSAs), complete base cases, functionality checks and sensitivity test.				
				• Tier three management units will be preparing for base case development.				
#2 – Landscape Unit Planning: Old and Mature Forest				• Aerial flights to identify and assess candidate old and mature forest stands leading to legal establishment of LU objectives for OGMAs.	300			
				• Establish rates and patterns of natural disturbance for major BEC units to guide Seral stage targets, OGMA deployment and FDP development.	75			

[1] H=high M=moderate L=low

#3 – Structural Attribute Definitions of Old and Mature				• Continued work on old refugia (ESSF) and synopsis of results of 7 BEC units completed.	50			
				• Inventory of rare Lichens on previously established ICH old growth study sites	25			
				• Model structural attributes in managed stands of moderate intensity fire regime.	25			
				• fire history and stand re-construction studies in IDFdm1	5			
#4 - Mountain Caribou								
#5 - Ungulate Winter Range (East)				• Field verification and prelim. PEM and Habitat ratings	150			
				• Habitat Mapping for UWR in the EK	30			
				• UWR Guideline refinement	10			
#5 - Ungulate Winter Range (West)				• Competion of radio-telemetry and track count data collection	30			
				• UWR Mapping	90			
				• Mapping review and guideline completion	10			
				• Post mapping gap analysis	5			
				• Final data collection and UWR modeling for identified areas	30-50			
#6 – Water Quality, Quantity and Timing of Flow				• Create Water Quality Index tool based upon summary and analysis of 5 yrs inventory along with other pertinent information, such as fish utilization, IWAP, CAP, ECA, BEC, etc…	100			
				• Calibration of existing bioassessment procedures to regional resident ecology	40			

				• Continued trend monitoring on select representative watersheds in addition to impact assessment monitoring on a few high priority watersheds	300			
				• GPS data collection on stream and water imtake location to obtain accurate information to implement HLP objectives	50			
				• Create water sampling tool kit for use by water purveyors and forest companies	40			
#7 - Site series and Predictive Ecosystem Mapping (PEM)				• Large scale BEC sub-zone mapping Boundary and remainder of Invermere forest districts	50			
				• PEM coverage for remainder of the region including detailed accuracy assessment of 2 major PEM projects	175			
				• Improve weak BEC site series classifications, including ESSFwm, ICHwk1 and ICHdw	10			
				• Improved site productivity estimates (SIBEC) in post harvest regenerated stands	75			
#8 - Fisheries				• Reconnaissance level fish and Fish Habitat inventories	500			
				• Fish Habitat assessment tool (FHAT20) modeling of fish distribution and habitat capability	50			
				• Species and stock specific fisheries inventory (eg. Telemetry)	150			
#9 - TSR inputs for Unstable Terrain				• develop a method for reconnaissance level avalanche mapping and netdown procedure	40 (total)			
				• Implement standard methodology of TSR netdowns based upon existing TSM				
#10 – Grizzly Bear Avalanche				• detailed avalanche track mapping and classification	140			

Track Classification				• Monitor Grizzly Bear use of Avalanche tracks	20			

Other Sub Regional SSFM Issues/Topics

Landscape Unit Planning				• committee to define GIS reporting needs linked to Strategic Land Use Plan and Land Use Plan objectives				
				• access to current MELP and MoF GIS land use planning GIS data sets				
				• define and develop program reporting with ministries and industry				
				• training in use of desktop application software				
				• deploy desktop software				
TSR inputs for Operational Adjustment Factors (OAF)				• establish Steering Committee (Forest Practices Branch, regional experts) and produce action plan				
				• design sampling system based on size and variability of stand types				
TSR and partial cutting				• establish steering and sub-committees to develop partial cutting action plans for issues (i.e., PROGNOSIS, growth and yield needs and model functionality				
				• develop detailed project plans (i.e., research, analyses and extension)				
TSR inputs for operability limits				• update lines using forest development plans, silviculture prescriptions, total chance plans, air photo interpretation and target field checks				
Rare and Endangered Species				• Reconnaissance surveys, inventory and habitat assessments.				
TRIM II								
VRI				• New vegetation inventory of all vegetation				

PSP Remeasurements				• Cyclical remeasurement of permanent sample plots				
Type II Silv. Investment Analysis				• Computer modelling to forecast potential outcomes of a variety of silvicultural scenarios for a specified management unit (TSA/TFL)				
ECA				• More accurate mapping of actual equivalent clearcut area for modeling input				
Archaeological Inventories				• Overview assessments and impact studies				
Recreation Plan				• Recreation planning compatibility matrix to assist in commercial recreation referrals which may also include road identification, use and density				
Big Horn Sheep/Breeding Bird Study								
Coarse Woody Debris Evaluation								
Armellaria root disease (OAF 2)				• Project to identify process by which to determine reliable operational adjustment factors (OAF) for Armellaria root rot				
TSA Re-inventories								
G&Y Strategic Plan Development				• Develop growth and yield strategy to support and/or assess TSR and Land use Planning implications				
TEM				• Stratification of the landscape into map units based upon ecological criteria				
Terrestrial Ecosystem Restoration				• To restore the capacity of ecosystems to provide the natural diversity of processes, habitats and species where they have been significantly impacted by past forestry practices				
Volume and Decay				•				

Wildlife Tree Patches				• Mapping and evaluation to determine if they will be abandoned, harvested or contribute to old growth targets				
Forest Dynamics				• Determine the dynamics in non contributing stands (inoperable) with respect to the old seral age account for biodiversity				
TSR – Riparian Accounting				• Improve upon methodology for riparian habitat accounting within TSR based upon existing inventories and stream classifications				
Visual Landscape Inventory								
Biodiversity				• Monitoring/Inventory/Modeling				
Aquatic Conservation Strategy				• To guide decisions on the protection, conservation, restoration and monitoring of aquatic ecosystems				
Lake Inventory				• Primary and secondary lakes component of fish and fish habitat inventory				
Medium Carnivore Inventory				• Development of interpretations for medium carnivores based on existing habitat mapping				
Alluvial/Debris Torrent Fan Inventory								
Wildlife Monitoring/ Population Studies								
Others to be considered								

Regional Activity Summary Table

SSFM Issue #	Activity #	Activity Name	Type[1]	Status[2]	Benefits: Scope of Benefits[3]	Benefits: Strategic Decision or Plan[4]	Benefits: Required completion date	Potential source of funding[5]	Investment to Date: $$	Investment to Date: Years	Investment Required ($$): 2002/03	2003/04	2004/05	2005/06	2006/07	Total[6]	Total # of years to complete	Priority
1	1.1	Spatial Analysis	E/U	E/N	4	HLP/TSR		RIP/MoF/MSRM/Lic	283,000	1	285,000	285,000				853,000	3	H
2	2.1	OGMA Delineation	E/U/N	E/N	R	HLP/TSR	Dec-03	RIP/MoF	300,000	1	100,000	75,000				475,000	3	H
	2.2	Maintaining Sufficient OG	E/U	N	R			RIP/MoF			75,000	70,000	20000			165,000	3	
3	3.1	Structural Attributes of old fire refugia	E/U/N	E	R	HLP/TSR		RIP/MoF	105000	1	50,000	15000				170,000	3	H
	3.2	Ancient Forest dependant species	N	E/N	4			RIP/MoF	50000	1	25,000					75,000	2	H
	3.3	Structural Attributes at risk in mod. Intensity fire regimes	U	N	4			RIP/MoF			25,000	25000				50,000	2	
	3.4	Structural Attributes of old forests in NDT 4	E/U	N	3			RIP/MoF			5,000	30000	50000			85,000	3	
4	4.1	Inventory population and movement in select areas	N	N	3	HLP/TSR		RIP/MWLAP	2500000	4	100,000	200000	200000	150000		3,150,000	8	H
	4.1	Inventory/monitor caribou populations every 3 years	N	N	R													H
	4.1	Refine guidelines, mapping and provide extention over time	E/U	E/N	R													H
5	5W3	Radio Telemetry and track count collection	N	E	3	HLP/TSR	Jun-03	RIP	400000	4	30,000					430,000	5	
	5W4	Draft UWR mapping	E/U	N				RIP/MWLAP	10000	4	90,000					100,000	5	H
	5W5	UWR Map review and guideline completion	E/U	N				RIP/MWLAP/MSRM			10,000					10,000	1	H
	5W6	Post mapping gap analysis	E/U	N				RIP/MWLAP/MSRM	10000	4	5,000					15,000	5	H
	5W7	Final data collection and UWR modeling	E/U/N	N				RIP/MWLAP/MSRM	10000	4	40,000					50,000	5	H
	5W8	Final UWR mapping compilation	E/U	N				RIP/MWLAP/MSRM	10000	4		10000				20,000	5	H
	5E1	Field verification of preliminary PEM/Hab. Ratings	E/U/N	E/N	3	HLP/TSR	Jun-03	RIP/MWLAP/MSRM	42000	4	60,000					102,000	5	H
	5E2	Habitat Mapping for UWR in the E. Kootenays	E/U	N				RIP/MWLAP/MSRM	10000	4	30,000					40,000	5	H
	5E3	UWR Guideline refinement	E/U	N				RIP/MWLAP/MSRM	5000	4	10,000					15,000	5	H
[illegible]	6.1	Water Quality Index Tool	E/U	E/N	R	HLP/TSR		RIP/MWLAP	3000000	5	100,000				50000	3,150,000	6	
	6.2	Rapid Bioassessment Procedure	E/U	E/N				RIP/MWLAP			40,000					40,000	1	H
	6.3	Trend and Impact Monitoring	E/U	E/N				RIP/MWLAP			300,000	300,000	300,000	300000	300000	1,500,000	5	
	6.4	Gap Analysis and Data Collection for HLP Implementation	E/U/N	N				RIP/MWLAP/MSRM	50000	2	50,000	150,000				250,000	4	
	6.5	Water Sampling Tool Kit	U	N				RIP/MWLAP			40,000					40,000	1	
[illegible]	7.1	Large Scale BEC Mapping	E/N	E/N	2	HLP/TSR		RIP/MoF	34000	1	50,000					84,000	2	H
	7.2	Predictive Ecosystem Mapping	E/U/N	E/N	R			RIP/MoF			175,000	300000	75000			550,000	3	H
	7.3	Improve weak BEC Site Series Classifications	E/N	E/N	R			RIP/MoF			10,000	30000	30000			70,000	3	H
	7.4	Improve Site Productivity Estimations - SIBEC	E/U/N	E/N	R			RIP/MoF/SIGY			75,000	75000	75000			225,000	3	
[illegible]	8.1	Fish Reconnaissance and Habitat Inventory	E/U/N	E/N	R	HLP/TSR		RIP/MWLAP	5000000	6	500,000	400,000	300000	150000		6,350,000	10	
	8.2	Fish and Fish Habitat Modeling	E/U	E/N				RIP/MWLAP			50,000	75,000	100000	75000	50000	350,000	5	
	8.3	Species and Stock Specific Fisheries Inventory	N	E/N				RIP/MWLAP	60000	1	150,000	100,000	100000	100000	75000	585,000	6	
[illegible]	9.1	TSR Inputs for Unstable Terrain	E	E/N	6	TSR		RIP/MoF			40,000	40,000	40,000			120,000	3	
0	10.1	Grizzly Bear Avalanche Track Classification	E/U/N	E/N	R	HLP/TSR		RIP/MWLAP/MSRM	140000	4	60000					200,000	5	H
Off-Strategy Activities																		
[illegible]																		
[illegible]																		
[illegible]																		

[1] Type of knowledge investment categories. E = (Organization, Synthesis, Analysis of Existing Info), U = (Tools, Applications, Extension to Enhance Use of Existing Information) N = (Field Inventory or Research)

[2] E. Existing, N = New

[3] S = MUs, R = Region, P = Province

[4] Strategic decision process or implementation of plans. SLUP (i.e. Regional, LRMP), TSR2, TSR3

[5] Ptential sources of funding. RIP (Resource Information Program), RE (Research Program), HRMP (Forest Renewal HQ Investment Plan), Ministries, Licensees, other

[6] Inlude existing investment in total

TEMPLATE 1: Key Regional SSFM Issues

SSFM Issue #: 1	Title: Spatial Analysis

Overview Description of the Regional Strategic Issue:

The Kootenay-Boundary Higher Level Plan Order (December 2000) established resource management zones and resource management objectives for the Kootenay-Boundary Land Use Plan area. Part 3 of the Order calls for the use of spatial analyses to facilitate monitoring and assessment of trends in economic and environmental variables associated with implementation.

Spatial analysis was identified by industry, government agencies, non-government agencies (NGO), and the Strengthening Sustainable Forest Management (SSFM) regional steering committee as a "high" regional priority in the 2000/01 Resource Management Plan. A Spatial Project Technical Committee has been formed and TFL#14 and TFL#23 pilot project areas have been selected to initiate the spatial analysis project.

Relationship to Sustainable Forest Management:

The maintenance of Environmental Values

Spatial analysis and monitoring of coarse filter (landscape/watershed) and fine filter (species/species guilds) environmental indicators and trends will accommodate environmental assessment of HLP Order implementation with respect to terrestrial and aquatic ecosystem integrity and biodiversity.

The sustainable use of timber resources

Spatially explicit analysis of forest management implications associated with HLP Order implementation will provide assessment of timber implications and options with respect to wood supply variables and forest management practices and options.

The sustainable use of non-timber resources

Spatially explicit assessment and monitoring of environmental and economic trends associated with HLP Order implementation will necessarily provide more certainty and management direction to other forest-related resources and values.

Relationship to Strategic Resource Plans and Decisions:

Strategic Decisions

TSR and other forest estate modeling experiences indicate a spatial modeling approach is needed to allow for trend analysis for a broad range of environmental variables in combination with the standard wood supply variables.

Strategic Resource Plans

Spatial analysis is needed to address the requirements of Objective 10 (Forest Economy) and Part 3 (Monitoring and Review) in the Kootenay-Boundary Higher Level Plan Order.

When this initiative is applied to complete management units (e.g. TFLs or TSAs), the results can be applied in the following ways:

- A delegation letter allows for modifications of the KBLUP by the RM and RD. This initiative will allow for an objective assessment of deployment options applicable to the recruitment of mature+old stands in the operable and inoperable landbases, and in the connectivity corridors.
- The results of this project will allow a means for the forest industry to locate its short-term wood supply while meeting all terms and conditions of the KBLUP and the Forest Practices Code.
- It is expected the management plans of TFLs, and the TSR 3 inputs of the districts, will be affected by the findings of this initiative.

The objective is to convey environmental/economic trend analyses of all management units completed as of January, 2004, to the Reference Panel tasked to review the Kootenay Boundary Higher Level Plan.

Cross Reference to Management Unit Issues (if applicable):

Both base case, sensitivity tests, and deployment options studies will be completed in TFL#14 and TFL#23 pilot areas in 2002/03. Base case and sensitivity test work will be completed in KLFD during this same period.

TEMPLATE 2: Knowledge Strategies

SSFM Issue #: 1	Title: Spatial Analysis

Overview Description of the Knowledge Strategy:

This project builds on the experiences of the ATLAS/SIMFOR spatial modelling projects conducted in the Revelstoke, Arrow and Golden TSAs, as well as FORUM and CASH spatial modelling work in TFL#14 and TFL#23. In the fall of 2000, a Spatial Analysis Committee consisting of industry and agency staff. They concluded the analysis of environmental and economic trends as suggested by the Higher Level Plan order was a new initiative in that it required the assessment of both sets of variables, simultaneously. The process was judged difficult but feasible, and GIS methods of analysis were not recommended as they would depict the wood supply and environmental conditions, for the present, but not for the future.

The regional committee recommended two pilots be initiated (TFLs 14 and 23), followed by additional units in the following years. A three year project was envisioned. In 2001/02, tier one (TFL 14 and 23) would produce a base case in that year, followed by their deployment options reports in 2002/03. Tier two management units would follow the same approach, but will be off-set one year. A third tier was planned as well, for a total of six to seven management units analysed by the formation of the HLP reference panel.

The project will not involve the collection of new information, but will however use the best available, current information. The project will, however, promote the implementation of large scale BEC mapping followed by PEM mapping.

Status of Existing Knowledge:

Describe the status of existing knowledge in this area in order to provide a rationale for:

i. Organization, synthesis and analysis: A number of spatial forest estate models exist that can be applied to this issue. A standard analysis model was not recommended by the Spatial Analysis Committee, provided four basic conditions were met:
   - The functionality of the model will be verified via Timber Supply Branch, and
   - The model must be capable of producing the required wood supply, economic and environmental output variables, and
   - Participating districts and TFLs will communicate via the Spatial Analysis Committee.
   - the management units to be analysed would be staggered over three years.

ii. Inventory: The baseline will be equivalent to the latest management unit plan or TSR 2.. Recent additions that should be added include line work from the declared KBLUP objectives, improvements in UWR, avalanche tracks, large scale BEC, and PEM. The latter two elements are required for accurate assessment of environmental trends.

iii. Extension: Both the base case and the deployment options reports, will be presented to interested parties.

iv. Research: A substantial amount of spatial modelling has been conducted in the NFR, but sometimes without conclusive results. CASH, ATLAS and FORUM projects have been conducted on some TSAs and some TFLs. These analyses have been predominantly

economic in nature, and did not analyse environmental trends with the exception of the spatial FSSIM work conducted in the EFMPP pilot area in Invermere. .

v. Monitoring: N/A

Describe the Required Knowledge-Building Activities in these Areas (as applicable):

Organization, Synthesis, Analysis:

- A Regional steering committee (e.g. Spatial Analysis Committee) is required. It must contain a TSB representative
- Each management unit being analysed, needs a technical committees, and
- Each management unit must particpate in the steering committee.

Resource Inventory:

- New layers are required for the HLP objectives, and
- large scale BEC is recommended before PEM, and
- PEM is necessary for the environmental monitoring.

Extension:

- base case and deployment report presentations are needed.

Research:

- N/A

Monitoring:

- N/A

Define Performance Indicators, Targets & Milestones:

The following apply:

- Spatial base cases, Timber Supply Branch functionality checks, sensitivity tests and deployment choice reports will be fully completed by March 31, 2003 for tier one management units (TFL 14 and 23 pilots).
- For tier two management units (Kootenay Lake and Invermere TSAs) , base cases, functionality checks, and sensitivity test will be completed by March 31, 2003.
- Tier three management units will be preparing for base case development the following year.

Describe Relationship to Other SSFM Knowledge Strategies (if applicable):
Direct linkage to SSFM Issue #7 – Site Series and PEM/TEM Mapping are required for accurate assessments of environmental trends. Issue #5 – Ungulate Winter Range and Issue #10 Grizzly Bear Avalanche Track Classification are also base data input considerations.

Cross Reference to Management Unit Activities (when complete):

TEMPLATE 3: Activities

SSFM Issue #: 1	Activity: Spatial Analysis	Activity #: 1.1

Summary:

- Develop the deployment reports and analyses for TFLs 14 and 23.
- Develop the base case reports and checks for Kootenay Lake and Invermere TSAs.

Status:

Existing/New

Objectives:

- Develop the deployment reports and analyses for TFLs 14 and 23.
- Develop the base case reports and checks for Kootenay Lake and Invermere TSAs

Describe Tasks, Deliverables, Targets and Milestones:

- **Spatial Project plan updates determine scheduling.**
- *Key elements and deliverables for each management unit include:*
  - *confirmation of output variables, including fine filter species*
  - *blocking approach*
  - *data package preparation*
  - *modification of model/GIS tools to produce coarse filter environmental and economic outputs.*
  - *identification of sensitivity tests*
  - *identification of deployment options*
  - *base case production*
  - *functionality check*
  - *base case report*
  - *deployment gaming*
  - *production of deployment report*

Cost Sharing:

50% government and 50% industry, is expected.

Partnerships:

MoF/MSRM/P&T and TEMBEC

Investment to date		**Investment Required**						**Total Years to complete**
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
283k	1	285k	285k				853k	3+

TEMPLATE 1: Key Regional SSFM Issues

SSFM Issue #: 2	Title: Land Use Planning for Old Forests

Overview Description of the Regional Strategic Issue:

Two broad topics are dealt with under this issue; the first relates to activities to evaluate candidate OGMAs, while the second examines the basis for the seral stage targets (points relating each of these respective topics will be numbered 1 and 2 in the following).

1. Identify and evaluate candidate old growth forests, within the Nelson Forest Region, to ensure that the most ecologically appropriate forests are identified in order to meet the Kootenay Boundary Higher Level Plan Order and Landscape Unit Planning Guide requirements.
2. Test and refine amounts and pattern of deployment of old forests.

Relationship to Sustainable Forest Management:

Environmental Values:

1. Biodiversity values of old forests are in large part conveyed by their structural attributes. Utilising Forest Cover mapping, solely, to identify old growth management areas (OGMAs) may not capture the most biologically valuable stands. Biodiversity conservation in the context of OGMAs is most at risk of not being completed in a timely matter. However, as old is associated with certain KB HLP Order objectives such as caribou, grizzly bear habitat and connectivity requirements these requirements may be at risk as well. If identification through inventory work is not conducted then there will be a foreclosing of options (e.g. increased fragmentation) and the possibility of some high value old forests being harvested.
2. Targets for old forest retention are based on scanty evidence. We do not have good data on the range of variability of natural disturbance rates. Landscape pattern and seral stage distribution can be strongly affected by timber harvest. The relationship between natural disturbance and seral stage and landscape pattern policy needs to be examined.

Timber Resources:

1. Timber resource planning and development is negatively influenced by a lack of certainty regarding areas available for harvesting versus retention for old KB HLP and OGMA requirements. Timber Supply Review determinations will be based on current information which is weak in the context of identifying specific areas for meeting old requirements. Forest Development Plans will be developed subject to further changes as old forests have yet to be identified.
2. Again as above, without local data on natural disturbance, targets that impact timber supply may be inappropriate

Relationship to Strategic Resource Plans and Decisions:

1. The KB HLP Order specifies that old and mature forests must be identified to meet biodiversity, caribou, grizzly bear habitat and connectivity corridor requirements. Additionally, old growth management areas must be legally established by December 2003.

   TSR 3 data package preparation is starting this summer for 2 TSA TSRs and thus will be able to utilize this information as it develops over the next two years. Other TSRs will capture this information as it is anticipated to be completed by December 2003.

   Conducting the implementation of old and mature requirements will fulfill KB Higher Level Plan requirements and Landscape Unit Planning requirements.
2. Targets for old and mature form a portion of the HLP objectives and policy described in the Landscape Unit Planning Guide.

Cross Reference to Management Unit Issues (if applicable):

Not applicable

TEMPLATE 2: Knowledge Strategies

SSFM Issue #: 2	Title: Land use plannning for Old forests

Overview Description of the Knowledge Strategy:

A combination of utilization of existing information with the collection of new information will be necessary to fully implement old forests requirements.

Status of Existing Knowledge:

1. Forest cover data is available for all management units. Forest Cover information is not sufficiently accurate or detailed to allow proper assessment of biological value of candidate stands.
   - Large scale (1:50 000) subzone mapping in available for Arrow, Columbia, and parts of Invermere Districts. Kootenay Lake and Cranbrook, are being mapped this year.
   - Various data management tools are available for the Districts to use of which include Landscape Unit Reporting System (LURS), Geomedia and ArcView Viewers, and HLP Reports.
   - The KB HLP Strategies document (May 14, 2001) is available to assist in implementing the objectives.
   - The Landscape Unit Planning Guide is available to assist in identifying and delineating OGMAs.
   - The document entitled "Evaluation of Candidate Old Growth Management Areas" is available to assist in ranking candidate stands.
   - Scorecards for evaluating structural attributes within stands have been developed ICHdw, ICHmw2, ESSFwm, and MSdk subzones. Work is under way in the ICHwk1, ESSFdk, and ESSFwc4.
   - Field assessment will have been completed on approx. 96 or the 192 LU's by the end of 2001/02.
2. IFPA research investigating pattern and natural range of variability of natural disturbance has been conducted . Work on natural age distributions for a number for the region has been reported (A Quantitative Evaluation of Natural Age Class Distributions and stand replacement intervals in the Nelson Forest Region Pollack et al. 1997). Similar work has been completed for areas just south of the US border (Eastside Forest Health Assessment 1994).
   - IFPA research on habitat attributes of non-harvestable landbase investigates potential impact of present policy has been partially completed and reveals different potential consequences of existing policy depending on BEC unit and location of constrained land.

Describe the Required Knowledge-Building Activities in these Areas (as applicable):

This strategy is comprised of the following activities.

Organization:
- Ministry of Forests Planning staff (Regional/District) will be implementing this strategy. Support staff such as the Forest Ecologist and MELPs Habitat section will assist.

Resource Inventory:
- Complete outstanding LU assessments based upon existing scorecards and available data.
- Review completed assessments based upon newly developed scorecards for the ICHwk1, ESSFdk and ESSFwc4, where appropriate.
- Final delineation and establishment of OGMA's.

Monitoring
- Regional assessment of OGMA deployment in terms of biological and timber impacts needed.

Research:
- Continued work on IFPA research on habitat attributes of non-harvestable landbase

- Extension of natural disturbance rate and pattern work to other BEC units of the region
- Adjustment of old and mature targets is politically sensitive and highly controversial. Results are likely to brought into question due to relatively extensive history of disturbance and methodological controversy. Potential benefits may be dramatic in both in terms of timber and environmental accounts if targets better reflect the natural range of variability. Indications are that old and mature targets may shrink in the south and increase in the northern portion of the region.

Define Performance Indicators, Targets & Milestones:

Old growth management areas will be fully mapped and legally established by December 2003. Draft OGMAs will be in place by December 2002.

Describe Relationship to Other SSFM Knowledge Strategies (if applicable):

Linked to SSFM#3 – Structural Attributes of Old and Mature Forests (essential to final delineation of OGMA's), SSFM#1 – Spatial Analysis (standard environmental input) and SSFM#4 – Mountain Caribou, SSFM#5 – Ungulate Winter Range and SSFM#10 – Grizzly Bear Avalanche Chute Classification as a basic management consideration.

.

Cross Reference to Management Unit Activities (when complete):

Identify the activities to be undertaken down to the management unit level.

TEMPLATE 3: Activities

SSFM Issue #:2	Activity: Candidate Old forest delineation	Activity #: 2.1

Summary:

Candidate old growth management areas (OGMAs) will be field and office checked as to their suitability for the Nelson Forest Region. Operational field work would have emphasis on aerial flights whereby whole landscape units would be assessed for candidate areas.

Status:

New

Objectives:

The objective is to create an inventory of candidate areas for old forests with the goal of legally establishing OGMAs by December 2003.

Describe Tasks, Deliverables, Targets and Milestones:

Complete remaining 96 LU field assessments to determine candidate areas.

By December 2002, draft landscape unit objectives for 192 landscape units will be prepared.

March 2003, Regional overview report on draft objectives.

By December 2003, landscape unit objectives for OGMAs will be legally established for 192 landscape units.

Cost Sharing:

MoF will be the main source of funding along with this initiative..

Partnerships:

MSRM, MWALP

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
~$300k	1	300k	75k				$675k	3

TEMPLATE 3: Activities

SSFM Issue #:2	Activity: Maintaining sufficient old forest in the landscape	Activity #: 2.2

Summary:

Research establishing natural levels of variation in natural disturbance and habitat attributes of the non-contributing landbase are needed to guide policy.

Status:

New

Objectives:

Establish rates and pattern of natural disturbance for major BEC units of the NFR to guide seral stage targets, OGMA deployment, FDP development.

Establish potential consequences of preferentially placing OGMAs in non-contributing landbase.

Describe Tasks, Deliverables, Targets and Milestones:

Develop regional workplan for natural disturbance work, November 2002

Report on Arrow and Kootenay Lake natural disturbance regimes, March 2003

Report on Cranbrook, Invermere and Boundary natural disturbance regimes, March 2004

Report on Columbia natural disturbance regimes, March 2005

Report on habitat attributes of non-contributing landbase In the East Kootenay phase 1&2, March 2003

Report on habitat attributes of non-contributing landbase In the East Kootenay phase 3, March 2004.

Cost Sharing:

MoF will be the main source of funding along with this initiative.

Partnerships:

MELP, IFPA

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
		$75k	$70k	$20k			$165	3

TEMPLATE 1: Key Regional SSFM Issues

SSFM Issue #: 3	Title: Structural attributes of old and mature forests

Overview Description of the Regional Strategic Issue:

Define old growth based upon structural attributes as opposed to using existing forest cover map attributes.

Structural attributes of old and mature forests provide the habitat elements that government is striving to maintain through the setting of seral stage targets. Stands of a given age class, can exhibit a wide variation in structure, and in addition, forest cover mapping is not always reliable. A number of widespread BEC units have yet to be described adequately (ESSFwc4, IDFdm1, NDT3).
Although the province has adopted a habitat or ecosystem based coarse filter approach in the policy around old forest, ultimately it is old growth dependant species that are trying to be maintained through delineation of OGMAs.

Relationship to Sustainable Forest Management:

Environmental Values:

The lack objective measures of stand structure associated with old forest can lead to disagreement on the value of potential candidate OGMAs or mature forest retained under the KB HLP. Loss of old growth dependant species may occur if sites critical to their survival are lost.

Timber Resources:
Timber resource planning and development is negatively influenced by a lack of certainty regarding areas available for harvesting versus retention for old and mature KB HLP and OGMA requirements. Timber Supply Review determinations will be based on current information of which is weak in the context of identifying specific areas for meeting old and mature requirements. Forest Development Plans will be developed subject to further changes as old and mature forests have yet to be identified.

Relationship to Strategic Resource Plans and Decisions:

The KB HLP Order specifies that old and mature forests must be identified to meet biodiversity, caribou, grizzly bear habitat and connectivity corridor requirements. Additionally, old growth management areas must be legally established by December 2003.
Conducting the implementation of old and mature requirements will fulfil KB Higher Level Plan requirements and Landscape Unit Planning requirements.
If not done then about 25% of the NFR LUP old growth decisions will not have objective structural attribute definitions to work from.

Cross Reference to Management Unit Issues (if applicable):

The issue around establishing the presence of lichen species in very ancient forests in the ICHwk1 pertains primarily to the Columbia Forest District. The bulk of the inland rainforest (ICHvk1 and ICHwk1) is found there.

TEMPLATE 2: Knowledge Strategies

SSFM Issue #: 3	Title: Structural attributes of old and mature forests

Overview Description of the Knowledge Strategy:

This issue has been addressed in large part by gathering new data. These results are compared with existing data. Future work will be a combination of gathering new data and modeling using existing data.

Status of Existing Knowledge:

- Index of old growthness reports available for 4 BEC units in NFR. Work is currently underway in 2 more BEC units. ESSFwc4 remaining widespread unit to complete. Will have a broad sampling of the most widespread BEC units once done.
- Recognition that present methodology is problematic in moderate intensity fire regimes of primarily NDT3 units
- Little local data for structure of NDT 4 old forest. The extent of low intensity fire regime within NDT4, especially for Boundary, is not well established.
- Research from NDT1 ICH interior rainforests (a globally unique ecosystem) in Kamloops Region indicates that extremely ancient forest (>1000yrs) is critical to certain rare lichen species. No information if this situation exists in similar forest in NFR. ICHwk1 will have such sites identified but present survey has not inventoried rare lichens. This level of dependance to one type of forest is rare for western North America and so increases the importance of identifying the extent of this association.

Describe the Required Knowledge-Building Activities in these Areas (as applicable):

This strategy is comprised of the following activities.
Organization, Synthesis, and Analysis

- Continued work on fire refugia old growth (complete ESSFwc4) and synthesis of results once a wide range of BEC units completed.
- Modeling of structural attribute development in managed stands of moderate intensity fire regime may be better means of identifying structures important to maintain in OGMAs.

Research:

- Stand reconstruction and fire history studies in IDFdm1. There is potential that ecosystem restoration efforts may be applied to inappropriate sites if the extent to which stand maintaining fires occurred in the past is not established. Without stand reconstructions, stand structural targets for restoration treatments may be inappropriate.
- Inventory of rare lichens on previously established ICHwk1 old growth study sites. The risk exists that globally rare species may be extirpated due to inappropriate siting of OGMAs.

Define Performance Indicators, Targets & Milestones:

Reports on:

1) Index of old-growthness in the ESSFwc4

   Overview of structural attributes of old growth forests in NFR

2) Identification of structure likely to be lost from managed stands in NDT3 moderate intensity fire regime.

3) Stand structure of fire maintained old forest.

   Extent of low intensity fire in the IDFdm1.

4) The occurrence of rare lichen species in old forests of the ICHwk1.

Describe Relationship to Other SSFM Knowledge Strategies (if applicable):

Linked to SSFM#1 – Spatial Analysis, SSFM#2 – Land Use Planning for Old Forests (basis for delineation of OGMAs) and SSFM#4 – Mountain Caribou, SSFM#5 – Ungulate Winter Range (basic management consideration in both)

Cross Reference to Management Unit Activities (when complete):

Identify the activities to be undertaken down to the management unit level.

TEMPLATE 3: Activities

SSFM Issue #:3	Activity: Structural attributes of old in fire refugia	Activity #: 3.1

Summary:

Sampling and analysis in ESSFwc4.

Synthesis, report and workshop on work in all 7 BEC units.

Status:

Existing

Objectives:

Provide tools for field assessment of old status through evaluation of easily measurable attributes.

Describe Tasks, Deliverables, Targets and Milestones:

Report with field scorecards for old growth structure in the ESSFwc4, March 2003

Report and Workshop on attributes of old growth forests in the NFR, March 2004

Cost Sharing:

Significant in-kind contribution from MoF.

Partnerships:

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
$105k	01/02	$50k	$15k				$65k	3

SSFM Issue #:3	Activity: Ancient forest dependant species	Activity #: 3.2

Summary:

Inventory work on organisms dependant on ancient forest in the ICHwk1.

Status:

Existing

Objectives:

Assess whether patterns of rare lichen occurrence in similar forests of the Kamloops Region holds true for the NFR.

Describe Tasks, Deliverables, Targets and Milestones:

Report on the presence of rare lichen species dependant on ancient forest in the ICHwk1, based upon sampling within existing old growth study site - March 2003

Cost Sharing:

Significant in-kind contribution from MoF.

Partnerships:

Kamloops Forest Region

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
$50k	01/02	$25k					$75k	2

TEMPLATE 3: Activities

SSFM Issue #:3	Activity: Structural attributes at risk in moderate intensity fire regimes	Activity #: 3.3

Summary:

Modeling of structural attributes likely to be eliminated through forest management. This approach is suggested as results from methods used in fire refugia old do not work well here. Methods applicable to large portion of old forest in NDT3 and portions of NDT2, results specific to BEC unit chosen for modeling.

Status:

New

Objectives:

Provide threshold values of structural attributes that will likely be eliminated in working forest and hence important to conserve in OGMAs and other reserves.

Describe Tasks, Deliverables, Targets and Milestones:

Report on modeling results for one widespread BEC unit, March 2003

Model verification, March 2004

Dependant on results could be applied to other BEC units in subsequent years

Cost Sharing:

Significant in-kind contribution from MoF.

Partnerships:

MELP

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
		$25k	$25k				$50k	2

TEMPLATE 3: Activities

SSFM Issue #:3	Activity: Structural Attributes of old forest in NDT4	Activity #: 3.4

Summary:

Stand reconstruction of fire maintained stand in the IDFdm1.

Fire history study detailing the extent of low intensity fire in the IDFdm1.

Status:

New

Objectives:

Provide local data for comparison with existing literature on structure in NDT4 forest.

Document extent of low intensity fire in order to guide harvest planning and restoration efforts in the Boundary District.

Describe Tasks, Deliverables, Targets and Milestones:

Selection of potential study sites for stand reconstruction , March 2003

Stand reconstruction report, March 2004

Report on extent of low intensity fire, March 2005

Cost Sharing:

Significant in-kind contribution from MoF.

Partnerships:

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
		$5k	$30k	$50k			$85k	3

TEMPLATE 1: Key Regional SSFM Issues

SSFM Issue #: 4	Title: Mountain caribou

Overview Description of the Regional Strategic Issue:

Mountain caribou are a Red-listed species *(threatened or endangered)* in British Columbia – there are less than 2500 of this ecotype globally. COSEWIC has also listed the mountain caribou as endangered nationally. The Kootenay region supports approximately 750 of the mountain caribou ecotype within six identified sub-populations.

Existing caribou inventory has focused on population status, distribution, habitat selection patterns and development of Habitat Suitability Index (HSI) models based on habitat use relative to habitat availability. Present caribou mapping was developed for the C.O.R.E. regional planning process at a scale of 1:250,000 and requires refinement (1:20,000 and 1:50,000) to meet both strategic and operational planning requirements. Current caribou guidelines are regional in context and application and require revisions to reflect recent inventory results and the habitat requirements and habitat use patterns specific to each sub-population.

A regional caribou committee is responsible for mapping and guideline refinements for four of the regional caribou sub-populations (Central Selkirks, South Selkirks, South Purcells and Central Rockies). The Revelstoke Minister's Advisory Committee (RMAC) is responsible for management of the Revelstoke caribou sub-population. Little has been done with the sixth population as it is primarily in the Southern Interior region.

Relationship to Sustainable Forest Management:

The maintenance of environmental values

Mountain caribou are known to require large amounts of mature/old forests and are thus often considered an umbrella species for a range of other old growth dependant species – for which information is often lacking or limited. In this context, the retention of old/mature forest requirements for caribou is assumed to capture the needs of a range of other old growth obligate species and old seral forest biodiversity needs.

The sustainable use of timber resources

Forest harvesting in mountain caribou habitat has been a management concern in B.C. for over 25 years. This issue has grown in recent times due to the expansion of timber harvesting into areas not previously considered for harvest (e.g., high elevation subalpine fir and subalpine fir-spruce and some hemlock-cedar stands). The demand for better information on forest management in caribou habitat has thus increased, along with the need to address timber supply impacts associated with maintenance of mature and old forest requirements for caribou. Sub-population specific information on caribou habitat requirements and guideline application will result in more effective regional higher level plan implementation, landscape unit planning and objective setting and Timber Supply Review decision-making. Improved forest management for caribou may support a more stable and predictable timber supply over the long term.

The sustainable use of non-timber resources

Commercial backcountry and recreational land uses like snowmobiling and heli-

skiing may be influenced by caribou management practices, and vice versa. Improved knowledge of caribou habitat requirements will provide more certainty to land use decisions. Increased certainty about caribou management and guidelines will result in more rapid and effective implementation of land use planning decisions and backcountry commercial and recreational tenure applications.

Relationship to Strategic Resource Plans and Decisions:

Strategic Decisions

TSR review decisions and AAC rationales will be improved through better delineation of caribou habitats (1:20,000 scale mapping) and associated management practices (guidelines) specific to each caribou sub-population.

Strategic Resource Plans

Caribou habitat requirements are a significant part of regional higher level plan and landscape unit planning processes. Without improved caribou mapping and guideline refinement at the sub-population level, it will be difficult to meet either higher level plan or landscape unit planning requirements and expectations effectively.

Cross Reference to Management Unit Issues (if applicable):

Caribou sub-population	**Applicable MUs (forest districts)**
Revelstoke	Columbia
Central Selkirks	Arrow, Kootenay Lake, Invermere
South Selkirks	Arrow, Cranbrook
South Purcells	Invermere, Cranbrook, Kootenay Lake
Central Rockies	Columbia
Monashee	Columbia, Arrow

TEMPLATE 2: Knowledge Strategies

SSFM Issue #: 4	Title: Mountain caribou

Overview Description of the Knowledge Strategy:

Extensive investment in telemetry, census, and field data collection during the past five years has provided much of the background information on caribou population status, distribution, and habitat use relative to habitat availability (HSI models). This information must now be applied to refinement of existing caribou mapping and guideline requirements for each caribou sub-population.

In the Central Rockies, additional inventory investment is needed if comparable levels of baseline inventories are to drive mapping and guideline refinement for all sub-populations within the region.

Status of Existing Knowledge:

Organization, synthesis and analysis

Habitat Suitability Index (HSI) models exist for the Revelstoke, Central Selkirks, and South Purcells sub-populations. Preliminary ecosystem-based capability/suitability mapping exists for the TFL#23 portion of the Central Selkirks (PEM-based) and for the Wood and Cummins Rivers portion the Central Rockies (TEM-based). Habitat mapping in the South Selkirks is largely derived from work conducted by U.S.A. biologists, where mountain caribou are legally designated as endangered. A Species Recovery Plan is being prepared for the South Purcells caribou sub-population.

Caribou telemetry and field data is largely reflected through development of habitat suitability models, which essentially compare habitat use relative to habitat availability. Some preliminary ecosystem-based (TEM/PEM) habitat capability/suitability mapping has also been conducted (see above).

Habitat *capability* is defined as the ability of the habitat, under optimum natural (seral) conditions for a species to provide its life requisites, irrespective of current condition of the habitat. Habitat capability is an estimate of the highest potential value of habitat to a particular species and is useful in assessing various habitat management and strategic decision-making options.

Habitat *suitability* is defined as the ability of the habitat in its current condition to provide the life requisites of a species. Habitat suitability is an estimate of how well the current habitat conditions provide the life requisites of specific species and is useful in identifying current habitat use of current seral conditions. The suitability of the land is frequently less than the capability due to unfavourable seral conditions (RIC 1999).

Inventory

Radio telemetry, population census and field sampling databases exist for four of the five sub-populations within the region – the Central Rockies caribou sub-population has limited telemetry and census data.

Extension

Extension activities have not been planned but will be required. The

Management Committee will design and implement a series of extension meetings and workshops with MOF and MWLAP staff, licensees, contractors, partner groups and knowledge experts as required. Information will also be posted on the MWLAP / MSRM web sites.

Research

Extensive research on caribou habitat and forest/silviculture management practices dates back more than twenty years. However, recent research suggests that each caribou sub-population may utilize habitat differently than other sub-populations and that local research is necessary to confirm or vary management practices within geographically distinct caribou sub-populations.

Monitoring

Population monitoring is ongoing in all sub-populations.

Describe the Required Knowledge-Building Activities in these Areas (as applicable):

Organization, Synthesis, Analysis
A Regional Caribou Committee is presently implementing a strategy to refine caribou mapping and guidelines based on most recent inventory information. The committee is using a combination of contracted projects, technical advisors, existing planning initiatives (Revelstoke MAC Plan) and expert knowledge to complete analysis of all areas and recommend mapping units and management guidelines for caribou.

Resource Inventory
The method for revising existing caribou mapping (from 1:250,000 to 1:20,000 scale) combines inventory telemetry data, derived habitat models and expert knowledge with forest cover/TRIM data and, where available, TEM/PEM ecologically-based mapping products.

Extension
Extension activities have not been planned but will be required. The Management Committee will design and implement a series of extension meetings and workshops with MOF and MWLAP staff, licensees, contractors, partner groups and knowledge experts as required.

Monitoring
The Regional Caribou Committee will assess ongoing monitoring requirements and provide recommendations for future monitoring activities.

Define Performance Indicators, Targets & Milestones:

Most of the investments in knowledge and data are completed and are currently feeding into the planning stages. All planning stages are expected to be completed in the late autumn of 2001

Describe Relationship to Other SSFM Knowledge Strategies (if applicable):

Completion of PEM is an important component of analysis of one of the caribou populations, the Central Selkirks.

Cross Reference to Management Unit Activities (when complete):
None

TEMPLATE 3: Activities

SSFM Issue #: 4	Activity: Caribou Habitat	Activity #: 4.1

Summary:

Tasks: Mapping of distribution of caribou habitat and refinement of area to which caribou guidelines will be applied for all five caribou populations. Development of habitat management guidelines for each population based on habitat selection and requirements.

Refinement of guidelines and monitoring results of identified guidelines and actions.

The six populations are: South Selkirks (MU 4-07, 4-08), South Purcells (MU 4-05, 4-06, 4-19, 4-20, 4-26), Central Selkirks (4-27, 4-28, 4-29, 4-30, 4-31, 4-33), Revelstoke (4-38, 4-39), Central Rockies (4-36, 4-37, 4-40, Monashees (4-32).

Status:

Existing

Objectives:

Map habitats and develop habitat management guidelines required to sustain all Kootenay region caribou populations.

Inventory caribou populations and movements in selected areas to determine site specific value of new management strategies

Refine mapping and guidelines application as new information accumulates

Monitor results from implementation of new strategies on caribou population and on the forest industry.

Provide extension activities including workshops, website access and meetings as required by users.

Describe Tasks, Deliverables, Targets and Milestones:

Revised maps of all Kootenay region caribou population habitats. Autumn, 2001

Revised habitat management guidelines for each Kootenay region caribou population. Autumn, 2001.

Inventory all caribou populations in region every three years. Annual targets of inventory completion.

Radio collar caribou in specific areas of concern to forest industry to improve knowledge of area use and management with emphasis on low elevation forest use in the Central Selkirks and Revelstoke populations. Deliverables will be improved guidelines for low elevation ICH forest management. Completion by 2005.

Plan extension activities and provide information in workshop or meeting settings as requested by user groups. Place necessary information on websites. Ongoing activity following completion of initial mapping and guidelines in 2001.

Cost Sharing:

Many agencies and organizations have contributed to caribou research and inventory over the years, including the Columbia Basin Fish and Wildlife Compensation Program and its precursors, the HCTF, Ministry of Environment, Ministry of Forests and the US Fish and Wildlife Service. All agencies will continue to contribute in funds or in kind.

Partnerships:

Currently the major partnerships are with MOF Research, the US Fish and Wildlife Service, Washington State, Washington State University, Columbia Basin Fish and Wildlife Compensation Program and the forest industry.

Investment to date		**Investment Required**						**Total Years to complete**
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
~2.5M	97-01	225k	200k	200k	150k		3.275M	8

TEMPLATE 1: Key Regional SSFM Issues

SSFM Issue #: 5	**Title: Ungulate Winter Range Mapping and Guideline Development Project**

Overview Description of the Regional Strategic Issue:

The *Forest Practices Code of BC Act, Operational Planning Regulation* - section 69, requires government identify Ungulate Winter Range (UWR) and develop management guidelines to protect those values by October, 2003. This UWR Mapping and Guideline Development Project will ensure government meets this impending deadline.

Relationship to Sustainable Forest Management:

i. The maintenance of environmental values

By assessing and classifying ungulate winter range habitat we will be able to protect and adequately manage the highest quality and most frequently used habitat.

ii. The sustainable use of timber resources

Timber extraction can be allocated as a function of habitat quality. This means that knowledge of the habitat quality of ungulate winter range will support a more stable and predictable timber supply in the long term. Government policy has set a limit on the impacts of establishing UWR equal to that determined in TSR I.

iii. The sustainable use of non-timber resources

Ungulates are important in various recreational activities such as hunting and recreational viewing.

Relationship to Strategic Resource Plans and Decisions:

i. Strategic Decisions

The Chief Forester will be provided better certainty around the area required to manage for UWR. The mapping being proposed for the East Kootenays will provide opportunities to conduct fine filter analyses within TSR III for identified wildlife.

ii. Strategic Resource Plans

Ungulate winter range classification and guideline development will determine how impacts are distributed between districts and within districts. It will allow landscape unit

scale planning of timber extraction to be performed with sensitivity towards this resource. Since ungulate winter range "Classes" will be defined functionally by identifying management guidelines for each class, impact on timber extraction and vice versa will be more predictable. This information will be available for TSR III for most districts.
Cross Reference to Management Unit Issues (if applicable): N/A

TEMPLATE 2: Knowledge Strategies

SSFM Issue #: 5	Title: Ungulate Winter Range Mapping and Guideline Development Project

Overview Description of the Knowledge Strategy:

The requirement to meet the legislation described above initiated the establishment of a regional committee. This committee agreed to divide itself between the eastern and western portions of the MOF regional boundary to ensure expediency of achieving the legislated time frame. Both committee structures include representation of government, ENGOs and industry.

Both committees are applying for funding to assist in the development of management guidelines appropriate to their respective areas. The committees are taking separate approaches to defining the winter range boundaries, mainly due to the existence of available ungulate information. The East Kootenays have had considerably more attention spent on gathering habitat information on ungulates in the past where the West Kootenays have had relatively little information gathered.

West Kootenays

Aerial census information, pellet counts, and more recent track counting and radio telemetry projects in the West Kootenays have provided some information on the whereabouts of ungulate species and the habitats that they are presently selecting . Several of these projects are in their final years. It is the intent of this committee to use that information and develop a GIS model to determine UWR boundaries. The model will be used to estimate boundaries where no empirical data exists.

East Kootenays

This committee is taking a more traditional approach to delineating boundaries. A combination of Terrestrial Ecosystem Mapping (TEM) and Predictive Ecosystem Mapping (PEM) will be used. TEM involves more labour intensive inventory techniques where PEM relies more heavily on computer analysis which reduces overall costs but results in less accurate mapping. To increase the reliability of PEM, existing TEM projects over similar areas (portions of the Invermere Forest District) and empirical information can be used to refine the mapping to acceptable standards.

This type of mapping provides delineation of site series consistent with the Biogeoclimatic Classification system. The next step uses expert knowledge, past telemetry data and census information to develop species accounts describing habitat use by site series to provide capability and suitability ratings for each ungulate. Capability ratings of a site series indicates the relative contribution of an area to provide a life requisite in its best state in comparison to other areas. Suitability ratings describe the present or future condition within a site in comparison to itself. For example, a particular site series may have a high capability rating for elk forage but would have a low suitability rating if a dense stand of confer in-growth was present. Delineation of UWR

boundaries will be based on the capability ratings of the ungulate species combined.

This type of mapping has several benefits beyond the identification of UWR boundaries. Because the mapping delineates down to the site series level and measures site condition, existing and future species accounts for identified wildlife and regionally significant wildlife can be applied to the map bases and habitat information can be determined. Operationally, silviculture prescriptions can be modified to increase the suitability of a stand to bring it closer to its potential capability. Strategically, this information can be used in spatial harvesting models and TSR analyses. The intent of the HLP Spatial Analysis Project intends to use the TEM data in TFL #14 to measure impacts on environmental accounts at the fine filter level. There are approximately 20 species accounts existing for habitats in the East Kootenays.

A concern by some committee members has been expressed about the reliability of the existing ungulate species accounts. As a result, the committee is proposing a contract to revisit these accounts to ensure most recent habitat information and relevant data from other jurisdictions is incorporated to increase their reliability.

Status of Existing Knowledge:

i. *Organization, synthesis and analysis:*

Ungulate winter range mapping was accomplished to support the development of a higher land use plan during the C.O.R.E. process in the mid-90s. The Province has developed some ungulate winter range mapping protocols. The protocols generally rely on base mapping using Predictive Ecosystem Maps (PEM), Terrestrial Ecosystem Maps (TEM), or GIS based modelling. There is a desire to assure that mapping of winter range adequately utilizes available empirical information in the mapping process.

ii. *Inventory:*

Broad Ecosystem Inventory exists for all of the Kootenay region but this mapping is at the 1:250,000 scale and is more appropriately used as a quality assurance tool. PEM and TEM exists in portions of the region with the most area mapped in the Invermere and Arrow Forest Districts. Gaps in such mapping are being addressed and are included this proposal. Aerial census information, pellet counts, and more recent track counting projects have provided some information on the whereabouts of ungulate species and the habitats that they are presently selecting. Several of these projects are in their final years.

iii. *Extension*

The existing information is either in varying formats (i.e., scale, mapping method, etc.) or is non-existent. Upon completion of this project more consistency will be available between districts for cross referencing and provide the Chief Forester consistency in his decisions.

iv. *Research*

Research of habitat use by ungulates has been conducted to varying levels in some portions of the region. This proposal will complete the information gaps and provide more confidence in knowledge of habitat use.

v. *Monitoring:*

The East and West Committees will ensure deadlines are met and projects completed to satisfactory levels. Monitoring of ungulate use via track counts, census and other approaches will allow continued evaluation of mapping efficacy.

Describe the Required Knowledge-Building Activities in these Areas (as applicable):

Organization, Synthesis, Analysis:

Complete Gap analysis of areas requiring winter range mapping and of available empirical information. Evaluate and select protocol for mapping. Using empirical information, expert input, and modeling produce maps of winter range. UWR classes will be identified that meet specific habitat requirements. Management guidelines specific to each Class must be developed to make the resolution of habitat classes pertinent to timber supply review.

Resource Inventory:

Track counts and radio-telemetry projects; completion of TEM/PEM and GIS based habitat models.

Extension:

Research:

Monitoring:

Define Performance Indicators, Targets & Milestones:

West Kootenays

Ungulate Winter Range Line-work Development Timeline

West Kootenay Ungulate Winter Range Committee

2001 to 2002

APRIL	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Prototype for UWR delineation approach						**Review and Approval**		**Completion of Radio-telemetry and Track count data collection**			

2002 to 2003

APRIL	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Draft Line work and Guideline completion for all of the West Kootenay using the approach identified above							**Review of line work and guidelines completion**				
Identify gaps in data								**Final data collection and modelling for areas with gaps in coverage**			

2003 to 2004

APRIL	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Project Completion											

Summary of milestones and performance indicators for the West Kootenays:

1. Pilot Project report: November 2001
2. Final reports and datasets for field data collection, March, 2002
3. Draft map and guidelines, November, 2002
4. Gap analysis report, November 2003
5. Final Data collection report, March 2003
6. Modelling product for areas with gaps in coverage, March, 2003
7. Final report and map, March 2003
8. Final review of products by Ministries acceptance of revisited winter range, September, 2003

East Kootenays

UWR Mapping and Guideline Development Considerations

SCHEDULE

1. Prepare a project work plan. Fall, 2000.
2. Describe the biological and ecological winter habitat requirements of resident East Kootenay ungulates. April Sept 2001
3. Identify ungulate winter range inventory gaps. April Sept 2001
4. Identify ungulate winter range in the east Kootenay. Oct Dec 2002
5. Identify ecosystem units within the winter range. Jan Mar 2003
6. Develop the ungulate winter range management guideline document. April June 2003

Submit the completed product for Regional approval Summer 2003

Describe Relationship to Other SSFM Knowledge Strategies (if applicable):

The PEM project for the East Kootenay is also an important part of the HLP Spatial Project that is underway.

Cross Reference to Management Unit Activities (when complete):

UWR mapping and guideline development will be incorporated into TSR III and upcoming MWPs for TFLs.

TEMPLATE 3: Activities

SSFM Issue #: 5	Activity: Prototype for Ungulate Winter Range Mapping	Activity #: 5W1

Summary:

Describe in overview the scope and implementation plans.

i. Geographic area covered:
At least three broad regions will be selected as the basis for analysis. The regions are defined as the following ecosections:
1. Central Columbia Mountains (CCM)
2. North Kootenay Mountains (NKM)
3. South Columbia Mountains/Selkirk Foothills (SCM/SFH)

Additional regions in the west Kootenays may be added if funding allows.

ii. Overview
The purpose of this project is to develop mapping techniques that will help refine the existing boundaries. These techniques will emphasize using empirical ungulate habitat use data obtained from radio-telemetry, pellet counts, and winter track counts. It is expected that the contractor will make use of empirical data and modelling information as much as possible to develop the mapping techniques and methodologies. However, if data are lacking for a given area, the contractor will have to decide between the next most appropriate modelling tool (i.e., expert driven models, extrapolating empirical models from adjacent areas).
At least one landscape unit within each of these ecosections will form the basis of this pilot exercise to apply these mapping techniques. Landscape unit selection should be based on the abundance of empirical data. Deer (mule and white-tailed), elk and moose will be the focal ungulates for the purpose of this pilot exercise. We realize that compared to deer and elk, moose have not been studied extensively in the West Kootenay region. However, attempts should be made to gather existing data on this species.
The notion of habitat capability will also be a key concept for purposes of UWR mapping. Capability is defined as habitat attributes that remain temporally static over the long-term (i.e., slope, elevation, aspect, solar radiation). The idea is that certain areas may not have an abundance of ungulates at a particular moment due to current vegetation or demographic factors (i.e., disturbances such as timber-harvesting, severe weather events, intraspecific social interactions, inter-specific interactions,), but have the potential to be high quality ungulate habitat and should be managed as such.

Status:

This project is ongoing and will be completed in November of 2001

Objectives:

1. To identify the methods and criteria for ungulate winter range mapping in the West Kootenays.
2. To map several pilot areas using a variety of approaches
3. To select the most appropriate approach for mapping the West Kootenay Winter ranges.

Describe Tasks, Deliverables, Targets and Milestones:

1. Final report
2. Map products for pilot areas

Cost Sharing: IFPA funding will be used for this pilot project.

Partnerships: IFPA, MOF, Industry

Investment to date		**Investment Required**						**Total Years to complete**
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
30k	97-01							.5

TEMPLATE 3: Activities

SSFM Issue #: 5	**Activity: Review and Approval of pilot project results**	**Activity #: 5W2**

Summary:

Describe in overview the scope and implementation plans.

i. Geographic area covered:

This activity will be pertinent to all of the West Kootenays.

ii. Overview

The development of a method for mapping ungulate winter range is a critical step in the project. At this point critical review is required from various ministries and industry to indicate potential problems and to obtain eventual approval by all parties concerned.

Status:

This activity will occur from October through November in 2001.

Objectives:

1. To review and edit the prototype pilot project.

Describe Tasks, Deliverables, Targets and Milestones:

1. A draft review of the pilot project by Ungulate Winter Range Committee members, the various Ministries, Industry, and other appropriate parties.
2. An approved winter range mapping method.

Cost Sharing:

Partnerships: IFPA. MOF, Industry

Investment to date		**Investment Required**						**Total Years to complete**
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
10k	97-01							.1

TEMPLATE 3: Activities

SSFM Issue #: 5	Activity: Completion of radio-telemetry and track count data collection	Activity #: 5W3

Summary:

Describe in overview the scope and implementation plans.

i. Geographic area covered:

Selected areas in Slocan Forest Products, Pope and Talbot, Kalesnikof, Meadow Creek Cedar, Belle Pole, Wynndel Box and Lumber, and Harrop Proctor Community Forest operating areas.

ii. Overview

Radiotelemetry and track counting identify places that are presently being used by ungulates during the winter. This information, coupled with information on the habitats associated with such habitat use are used to provide insight in ungulate selection and use of habitat. Such information has already identified variances in ungulate behaviour as a function of the broad area in this regard.

Status:

These activities have been ongoing and are nearing completion. They will be occurring during this fiscal from June, 2001 until March, 2002.

Objectives:

The objective of this type of study is to identify topographic and forest cover parameters used by ungulates during winter and refine ungulate winter range lines

Describe Tasks, Deliverables, Targets and Milestones:

1. Final reports
2. Databases
3. ArcInfo maps

Cost Sharing:

Partnerships:

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
~400k	97-01	30k					430k	5

TEMPLATE 3: Activities

SSFM Issue #: 5	Activity: UWR mapping of the West Kootenays: Draft	Activity #: 5W4

Summary:

Describe in overview the scope and implementation plans.

i. Geographic area covered:

All portions of the West Kootenays that have the appropriate datasets necessary to support the mapping.

ii. Overview

Using the method identified in Activity W1, mapping will be completed for all portions of the West Kootenays that possess the appropriate information necessary to do so.

Status: New project. The method that will be used in this Activity will be determined by the pilot study. This will influence cost to some extent.

Objectives:

1. To map the ungulate winter range using the method identified in the 2001 pilot Activity (#W1)

Describe Tasks, Deliverables, Targets and Milestones:

1. Draft Ungulate Winter Range map for substantial portions of the West Kootenays.
2. Final report

Cost Sharing:

Partnerships: IFPA, MOF, Industry

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
10k	97-01	90k					100k	5

TEMPLATE 3: Activities

SSFM Issue #: 5	Activity: Review of West Kootenays UWR map and completion of guidelines	Activity #: 5W5

Summary:

Describe in overview the scope and implementation plans.

i. Geographic area covered:

The project pertains to all of the West Kootenays

ii. Overview

A draft review of the line work is necessary at this time to guide project completion and to begin work on management guidelines. Management guidelines for each ungulate winter range class will be developed based on recommendations from the pilot study.

Status:

New project activity that will be linked to the completion of the draft winter range map. The expected timeframe is from November 2002 to March 2003.

Objectives:

3. To provide critique of the ungulate winter range draft map
4. To develop management guidelines for each habitat class in ungulate winter range.

Describe Tasks, Deliverables, Targets and Milestones:

1. Incorporation of recommendations into UWR mapping
2. Report designating guidelines specific to the Ungulate winter Range "Classes"

Cost Sharing:

Partnerships: MOF, IFPA, Industry

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
	97-01	10k					10k	.5

TEMPLATE 3: Activities

SSFM Issue #: 5	Activity: Post-mapping Gap Analysis	Activity #: 5W6

Summary:

Describe in overview the scope and implementation plans.

i. Geographic area covered:

The project pertains to all of the West Kootenays

ii. Overview

Not all areas in the West Kootenays will possess either the base mapping or sufficient empirical data on populations to meet the data requirements of the approved method. In these cases we wish to extrapolate from the main method using an alternative modelling approach. This activity identifies those gaps.

Status:

New activity dependent upon the outcome of the overall project.

Objectives:

1. To identify the ungulate winter range areas that cannot be mapped using the approved method.

Describe Tasks, Deliverables, Targets and Milestones:

1. Brief report
2. Map illustrating areas in need of refinement using and alternative approach.

Cost Sharing:

Partnerships: IFPA, MOF

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
10k	97-01	5k					15k	5

TEMPLATE 3: Activities

SSFM Issue #: 5	Activity: Final data collection and UWR modelling for identified areas in the West Kootenays.	Activity #: 5W7

Summary:

Describe in overview the scope and implementation plans.

i. Geographic area covered:

Areas identified in the final gap analysis.

ii. Overview

Not all areas in the West Kootenays will possess either the base mapping or sufficient empirical data on populations to meet the data requirements of the approved method. In these cases we wish to extrapolate from the main method using an alternative modelling approach. This activity develops that modelling approach and implements it to fill the gaps.

Status:

New project contingent upon the outcomes of prior activities in the Ungulate Winter Range Project.

Objectives:

1. To develop a method or model for winter range mapping in lieu of the optimum data availability
2. To map the areas in need of alternative mapping and assure that the alternative method fits with the overall mapping scheme.

Describe Tasks, Deliverables, Targets and Milestones:

1. Final report
2. Map of West Kootenay winter range including the areas mapped in this exercise.

Cost Sharing:

Partnerships: IFPA, MOF

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
10k	97-01	30-50k					40-60k	5

TEMPLATE 3: Activities

SSFM Issue #: 5	Activity: Ungulate Winter Range Mapping final product compilation	Activity #: 5W8

Summary:

Describe in overview the scope and implementation plans.

i. Geographic area covered:

The project pertains to all of the West Kootenays

ii. Overview

The process of approving ungulate winter range must include input from all interested parties. Review will involve various ministries, licensees, and other parties. It will be a relatively formal process requiring specific feedback.

Status: These activities have been ongoing and are nearing completion. They will be occurring during this fiscal from June, 2001 until March, 2002

Objectives:

1. To obtain input on the position of winter range lines
2. To summarize critical review of the product
3. To recommend changes in mapping line work and guidelines based on this review.
4. Implement the changes and produce a Final mapping product

Describe Tasks, Deliverables, Targets and Milestones:

1. Final Report with recommendations and map for submission to meet legislated requirements
2. Final Map product

Cost Sharing:

Partnerships: MOF, IFPA, Industry, Other

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
10k	97-01		10k				20k	5

TEMPLATE 3: Activities

SSFM Issue #: 5	Activity: Field Verification of preliminary Predictive Ecosystem Mapping (PEM) and preliminary Habitat Ratings leading to finalized PEM, wildlife species accounts and wildlife habitat ratings	Activity #: 5E1

Summary:

Describe in overview the scope and implementation plans.

i. Geographic area covered:

The East Kootenays (Invermere, Cranbrook and Golden portion of Columbia forest districts)

ii. Overview

To conduct field sampling of preliminary GIS-generated predictive ecosystem mapping and preliminary wildlife habitat ratings for mule deer, elk, white-tailed deer, moose, Rocky Mountain Bighorn sheep and Mountain goats.

Status: Current fiscal year project

Objectives:

1. Develop Field Sampling Plan based on preliminary GIS-generated PEM and preliminary habitat ratings
2. Conduct field sampling
3. Compile data, data analysis and reporting
4. Revise, as necessary, the PEM, species accounts and habitat ratings
5. Perform quality assurance with headquarters

Describe Tasks, Deliverables, Targets and Milestones:

1. Report sumarizing field sampling data with recommendations on preliminary PEM and wildlife habitat ratings tables.

Cost Sharing: MOF Small Business and major licensees

Partnerships: Industry, MOF, Small Business

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
42k	97-02	150k					192k	5

TEMPLATE 3: Activities

SSFM Issue #: 5	Activity: Habitat Mapping for ungulate winter ranges in the East Kootenays	Activity #: 5E2

Summary:

Describe in overview the scope and implementation plans.

i. Geographic area covered:

The East Kootenays

ii. Overview

Ungulate winter range habitat suitability and capability maps will be derived based on finalized PEM, species accounts and habitat ratings tables.

Status: New project

Objectives:

1. To map ungulate winter range in the East Kootenays using provincial wildlife habitat standards (RIC 1999).

Describe Tasks, Deliverables, Targets and Milestones:

1. Ecosystem-based ungulate winter range habitat capability/suitability 1:20,000 scale maps for Cranbrook, Invermere and Golden portion of Columbia forest districts. (Oct. 2003)
2. Analysis of implications of ecosystem-based ungulate winter range mapping results considering strategic direction for re-mapping ungulate winter ranges (ie: timber impacts/TSR2).
3. Report identifying options and implications (ungulates/timber).

Cost Sharing: MOF Small Business

Partnerships: Industry, MOF, Small Business

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
10k	97-01	30k					40k	5

TEMPLATE 3: Activities

SSFM Issue #: 5	Activity: Ungulate Winter Range Guideline Refinement	Activity #: 5E3

Summary:

Describe in overview the scope and implementation plans.

i. Geographic area covered:

The East Kootenays

ii. Overview

This project will refine existing guidelines for moose, elk, white-tailed deer, mule deer, goats and sheep ungulate winter ranges using ecosystem-based mapping results.

Status: This will be an East Kootenay Ungulate Winter Range committee driven process

Objectives:

1. Review and revise, as needed, existing guidelines within context of new ecosystem-based mapping results.

Describe Tasks, Deliverables, Targets and Milestones:

1. Final Report describing East Kootenay Ungulate Winter Range Management Guidelines

Cost Sharing: MOF Small Business

Partnerships: Industry, MOF, Small Business

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
5k	97-01	10k					15	5

TEMPLATE 1: Key Regional SSFM Issues

SSFM Issue #: 6	Title: Maintaining water quality, quantity and timing of flow in community and domestic watersheds

Overview Description of the Regional Strategic Issue: Maintaining Water Quality, Quantity and timing of flow in community and domestic watersheds.

Background:
The issue of water quality has become increasingly prominent and, due to the contamination incidents in Walkerton and North Battleford, has been established as a national priority. A report by the BC Auditor General emphasises protection of drinking water and makes specific recommendations regarding timber development in consumptive-use watersheds. Locally, in an IFPA-funded socio-economic survey conducted in the Arrow District, clean water rated as a top concern for respondents. Many water users believe that logging will ruin the quality of their water supply and therefore oppose forest development in their watershed.

Conversely, the forest industry believes that the Forest Practices Code offers sufficient protection of the water resource and is frustrated by the hurdles encountered in attempting to carry out activities within these watersheds

The Forest Practices Code, the Kootenay-Boundary Landuse Plan - Implementation Strategy and the Higher Level Plan Order all provide direction to ensure that water quality is maintained. However, the informataion and analyis necessary to adequately implement water quality objectives and assist in land-mangement decisions is lacking.

Relationship to Sustainable Forest Management:

i. The maintenance of environmental values

Monitoring and analysis of water quality parameters will provide knowledge regarding the natural variability inherent within watersheds in the Nelson Region and form the basis for management decisions designed to protect the water resource. Broader coverage of inventory data is necessary to set Water Quality Objectives required by the Forest Practices Code. Ensuring water quality protects both drinking water and the habitat for aquatic resources, some of which are blue and red-listed.

ii. The sustainable use of timber resources

Improved development decisions will result from the availability of standardised data of assured quality, better identification of naturally occurring sensitivities, and impact assessment of various management practices
Forest licensees working in Community and Domestic Watersheds will enjoy reduced resistance to development as water user confidence is increased through improved decision-making and water user involvement in monitoring water quality
Improved water source and POD information will allow the Higher Level Plan to be fully implemented and result in a more accurate Timber Supply Review.

iii. The sustainable use of non-timber resources

Management practices clearly have the potential to create peak flow impacts on stream morphology, aquatic habitat and domestic water systems. Development-induced lower low flows can impact agriculture, domestic use, fisheries and recreation. Additional accurate baseline data and trend analysis will assist in distinguishing natural and

development-induced impacts. Statutory Decision-Makers will thus have better information on which to base development decisions

Relationship to Strategic Resource Plans and Decisions:

i. Strategic Decisions

Improved water inventory will support the resource management policy presented in Kootenay Boundary Land Use Plan (KBLUP 51.4, 51.4.1, 51.4.7). Water intake inventory will enable the Higher Level Plan (HLP – point #6 Consumptive Use Streams) to be better implemented and allow for increased accuracy in the Timber Supply Review (TSR). In the future, water quality standards may be included in International Certification initiatives.

ii. Strategic Resource Plans

The regional analysis of water quality data will support Landscape Unit Planning. The data and analysis also provide a scientific rationale for decision-makers and allow the public to better understand the issues.

The timing of upcoming strategic decisions and/or planning efforts are not known.

Cross Reference to Management Unit Issues (if applicable):

Unknown

TEMPLATE 2: Knowledge Strategies

SSFM Issue #: 6	Title: Water Quality Quantity and Timing of Flow in Community and Domestic Watersheds

Overview Description of the Knowledge Strategy:

- **Regional Data Analysis** conduct a thorough analysis of existing regional data using a multi-disciplinary approach that will:
  1. create a Regional Water Quality Index consistent with that already developed by WLAP
  2. establish correlations with current planning assessment tools
  3. guide the choice of parameters and sites for future inventory and monitoring activities
- **Rapid Bioassessment Tool:** analyze existing data so that a rapid bioassessment tool using benthic invertebrate information (similar to the US EPA protocol) can be created to assess watershed health.

- **Gap analysis and collection of information necessary for implementation of HLP riparian** objectives in domestic watersheds. Need to locate and map streams, lakes, fens, wetlands and water storage features not already on GIS, catalogue stream classes, update POD intake information and identify those stream segments requiring riparian management under HLP.

- **Assess the effectiveness of FPC requirements** in protecting water quality, quantity and timing of flow through trend and impact monitoring. **Trend** monitoring is used to detect subtle changes over time. **Impact monitoring** measures the effect on water quality of a particular project (anthropogenic).

- **Develop regional monitoring "tool kit"** for use by lay-samplers and community water groups, forest companies and other non-government organizations. [Better partnerships should be developed between forest licensees, water users groups and government agencies in the collection and interpretation of data toward a shared goal of maintaining water quality and quantity.]

Status of Existing Knowledge:

Organization, synthesis and analysis –,

- Existing inventory data has been summarized by watershed but synthesis and analysis of existing regional water quality related information has not been carried out and is a primary task.
- Improved tools are required for analysis of water quality, hydrometric and benthic data.

Inventory:

- RIC guidelines have provided the standards by which water quality, quantity and benthic inventories are carried out.
- Three to five years of data exists from ongoing sampling in 30 watersheds employing a variety of methods.. A single basic program and protocol is employed, with additional information being collected specific to individual watershed where appropriate.
- Two programs have included impact monitoring for sediment, flow and temperature above and below development.

Deleted: ¶

- Identification of consumptive-use water sources and other aquatic features is incomplete.
- Additional sampling is required to support trend and impact analysis and enable calibration of a Rapid Bioassessment tool

Extension:
- Existing inventory data is stored in three Provincial data bases (two are not fully implemented and one is available through restricted web access)
- Five years of annual inventory reports exist for individual streams and are available through the MELP regional website.
- No regional analysis of trends or impacts from development exists

Research:
- There has been no research component to the existing water inventory program.
- MOF has conducted some paired watershed studies to determine effects of development on peak flows and sediment yield.
- There is insufficient information to properly assess the physical, chemical, bacteriological and biological impacts of forest harvesting on water quality and flow and to assess the long-term forest management impacts on aquatic resources.

Monitoring:

The IFPA funded a study that looked at the Arrow Districts water inventory program and made effectiveness recommendations.

Describe the Required Knowledge-Building Activities in these Areas (as applicable):

Organization, Synthesis, Analysis:
- The data from existing inventory programs will be summarized and analyzed on a watershed and regional basis to glean additional information, relating changes (or not) in water quality and quantity with land use and other factors. A Water Quality Index will be created to integrate water inventory information with other existing land management tools. The regional analysis will focus the future inventory/monitoring in this region.
- The US EPA "rapid bioassessment procedure", involving inventory and assessment of benthic organisms as a sentinel for ecological health will be developed and calibrated for the Nelson Region. This will provide an effective tool for assessing watershed health and sustainable forest practices and a scientific rationale for decisions.

Resource Inventory and Monitoring:
- Assess effectiveness of FPC requirements in protecting water quality, quantity and timing of flow by:
  1. Continued trend monitoring in selected representative watersheds
  2. Initiate impact assessment monitoring in a few high priority watersheds. The data collected may then be directly linked to any development being undertaken in the watersheds.
- Do a "gap analysis" on missing stream data essential for HLP implementation.
- Collect GPS data on stream and water intake location and develop a GIS mapping layer which will better represent the information on stream networks and be capable of storing new data on a variety of sources.

Extension and Research:

- Develop a monitoring tool-kit for effective, low-cost water and channel monitoring for use by forest companies and water user groups.
- Create information package for the public to better educate them on water quality issues, the limitations of water quality data and it's benefits.
- Summarize and centralize existing water quality, quantity and biological data.

Describe Relationship to Other SSFM Knowledge Strategies (if applicable):

Related to but not critical for Fish Inventory, WRP and Spatial Analysis

Cross Reference to Management Unit Activities (when complete):

The data needs to be available for each Management Unit for TSR review and for Land Use Planning Decisions.

TEMPLATE 3: Activities

SSFM Issue #: 6	Activity: Water Quality Index Tool	Activity #: 6.1

Summary:

Describe in overview the scope and implementation plans.

i. Overview of Tasks

- The data from 5 years of water quality/quantity inventory programs will be summarized and further analyzed on a watershed and regional basis along with other pertinent information on land use, management practices, fish utilization, IWAP, CAP, ECA, BEC zone and erosion hazard to:
  1) Optimize and focus future monitoring and inventory work in select watersheds, to develop correlation's that relate changes (or not) in water quality and quantity with land use and
  2) Create a Water Quality Index tool.

Status:

Existing/New

Objectives:

Partnerships:

Existing partnership with community groups, community forest licensees and Multi-year agreement holder licensees will continue. More partnering between the various Ministries is expected.

Investment to date		**Investment Required**						**Total Years to complete**
$$	Years	**$$** 2002/03	**$$** 2003/04	**$$** 2004/05	**$$** 2005/06	**$$** 2006/07	**$$** Total	
3,000k.	5	100k				50k	3,150k	1 year for data analysis Update data in 2006

TEMPLATE 3: Activities

SSFM Issue #: 6	**Activity: Rapid Bioassessment Procedure**	**Activity #: 6.2**

Summary:

Describe in overview the scope and implementation plans.

ii. Overview of Tasks

- The US EPA "Rapid Bioassessment Procedure" (RPB), involving inventory of benthic organisms as a sentinel for ecological health, should be developed and calibrated for the Nelson Region. The data collected to date and used for this procedure will provide effective and scientific rationale for decisions. The information will also be useful for assessing watershed health and sustainable forest practices, making land use decisions as well as reporting to managers and the public.

Status:

Existing/New

Objectives:

Monitoring of watershed impacts using RPB

Partnerships:

Existing partnership with community groups, community forest licensees and Multi-year agreement holder licensees will continue. More partnering between the various Ministries is expected.

Investment to date		**Investment Required**						**Total Years to complete**
$$	Years	**$$** 2002/03	**$$** 2003/04	**$$** 2004/05	**$$** 2005/06	**$$** 2006/07	**$$** Total	
3,000k.	5	40k					40k	1 year for data analysis

TEMPLATE 3: Activities

SSFM Issue #: 6	Activity: Trend and Impact Monitoring	Activity #: 6.3

Summary:

Describe in overview the scope and implementation plans.

iii. Overview of Tasks

- Continue trend monitoring on select representative watersheds.
  Requires consistent long-term sampling program to detect changes over time
- Initiate impact assessment monitoring on a few high priority watersheds
  Ideally includes test and control sites, as well as adequate pre- and post-development data collection
- **NOTE**: Results of Activity #1, combined with Regional Watershed Advisory Committee input will determine requirements for continued monitoring.

Status:

Existing/New

Objectives:

Partnerships:

Existing partnership with community groups, community forest licensees and Multi-year agreement holder licensees will continue. More partnering between the various Ministries is expected.

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
3,000k.	5	300k	300k	300k	300k	300k	1,500k	5 years for continued trend and impact monitoring

TEMPLATE 3: Activities

SSFM Issue #: 6	Activity: Gap Analysis and Data Collection for HLP Implementation	Activity #: 6.4

Summary:

Describe in overview the scope and implementation plans.

iv. Overview of Tasks

- Collect GPS data on stream and water intake location and develop a GIS layer that represents the best information on stream networks.
- Obtain accurate information to implement of the HLP riparian objectives in domestic watersheds. Need to locate and map streams, lakes, fens, wetlands and water storage features not already on GIS, catalogue stream classes and identify those stream segments requiring riparian management under HLP.

Status:

New

Objectives:

Partnerships:

Unknown at this time

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
50k	2	50k	150k				250k	1year gap analysis, 1 year data collection

TEMPLATE 3: Activities

SSFM Issue #: 6	Activity: Water Sampling "Tool Kit"	Activity #: 6.5

Summary:

Describe in overview the scope and implementation plans.

v. Overview of Tasks

- Using existing EPA publications for guidance, and Health Authority input, create an information package and water sampling 'tool kit' for use by water purveyors and forest companies.

Status:

New

Objectives:

Partnerships:

Enhance partnerships with community groups, community forest licensees and Multi-year agreement holder licensees will continue.

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
		40k					40k	1

TEMPLATE 1: Key Regional SSFM Issues

SSFM Issue #: 7	Title: Site Series Mapping and PEM/TEM

Overview Description of the Regional Strategic Issue:

Historic 1:250,000 scale BEC mapping is inappropriate for many current uses and decision making.

Ecological mapping has widespread applications including NDT assignment, seral stage targets, wildlife habitat modelling, site index adjustment, and silvicultural planning. Accurate mapping is critical to management decision making. 1:50, 000 scale BEC mapping is now a pre-requisite for PEM as per RIC standards.

There is a significant area of the region where the BEC site series classification is based upon very little sampling. This results in poor predictive power in terms of ecological functioning and hence such interpretations such as tree species selection, and habitat values.

Relationship to Sustainable Forest Management:

Environmental Values:

The cornerstones of the province's biodiversity strategy are based on the interpretation of natural disturbance regime through BEC mapping. BEC variant mapping in the NFR is of an older and less accurate standard in Cranbrook, Kootenay Lake, Boundary, and about half of Invermere Forest Districts. In these areas, the variant mapping is the old 1:250 000 accuracy, and this level of accuracy is not appropriate for many current uses and decisions, e.g. 1:20 000 ecosystem mapping, calculation of seral stage targets at landscape unit level, and spatial modelling of Caribou habitat. 1:20 000 scale site series mapping (PEM/TEM) is increasingly used for habitat supply modeling. In units with weak site series classifications, even with accurate PEM habitat interpretations will be suspect.

Timber Resources:

Site index adjustment through PEM/SIBEC process can have dramatic effects upon growth and yield estimates and hence timber supply. Timber resource planning and development is very directly affected by BEC mapping through seral stage targets. Site series are the basis for numerous interpretations including species selection decisions, and site index estimates. In areas of weak classifications these interpretations will be less precise.

Non-timber Resources

PEM may prove to be a valuable tool in planning for non-timber resource use and conservation as the occurrence of these resources can be predicted by site series in many cases. Again in BEC units with weak classifications the prediction of the occurrence and vigour of these resources is compromised.

Relationship to Strategic Resource Plans and Decisions:

A number of KB HLP objectives make reference to BEC as a framework. Accurate mapping will ensure the most appropriate application of management to meet these objectives, e.g. Caribou, FMER, UWR, Old and mature forests.

Site series is directly linked to Growth and Yield estimates. Upward adjustments of up to 7 metres SI (50yrs) have been observed for some species on some old growth sites. This in turn has a dramatic potential effect on timber supply.

If PEM is not carried out managers will have to rely on growth and yield estimates and habitat supply modeling based primarily on forest cover mapping.

Cross Reference to Management Unit Issues (if applicable):

Not applicable

TEMPLATE 2: Knowledge Strategies

SSFM Issue #: 7	Title: Site series Mapping and PEM/TEM

Overview Description of the Knowledge Strategy:

Both large scale BEC and PEM/TEM utilise both existing data (existing PEM/TEM, TRIM, FC mapping) and new data collection and synthesis.

Status of Existing Knowledge:

1. Large Scale BEC mapping (1:50,000) exists for Arrow, Columbia and parts of Invermere Districts (methodology established). This fiscal Kootenay Lake (and likely Cranbrook) are to completed. Rest of region accurate to 1:250 000 scale.
2. PEM/TEM available for Arrow, TFL 8, TFL 14, substantial portions of Invermere District, small areas of other Districts. Both PEM and TEM have RIC standards.
   - No independent accuracy assessment available for any PEM/TEM. PEM methods still under development. PEM validation assessments indicate that accuracy may not sufficient to utilise for site index adjustment. Chief Forester has raised questions regarding this issue. TFL3 and TFL23 are contemplating work to improve accuracy.
3. Site series classification for a number of BEC units weak, e.g. ESSFwm, north/south split in ESSFwc1 and ESSFwc4, portions of ICHdw and ICHwk1, IDFun, grassland, open forest site series of IDFdm1, and 2, PPdh1, and dh2. Considerable data exists that has not been synthesized for these units through PEM/TEM projects.
   - Existing unutilised BEC data is being coded this fiscal through provincially funded project.

Describe the Required Knowledge-Building Activities in these Areas (as applicable):

This strategy is comprised of the following activities.

Organization, Synthesis, and Analysis

- Gather existing data for priority BEC units with weak classifications.
- Derive new site series classifications for the priority units with sufficient data. Develop workplan to gather new data if insufficient.

Resource Inventory:

- The remainder of Invermere and Boundary will be large scale BEC mapped in 2002-03.
- PEM for remainder of region.
- Identify SIBEC data weaknesses and collect supplementary data.

Research:

- Investigate source of PEM inaccuracies for one or more PEM projects.

Monitoring

- Detailed accuracy assessment of a few PEM projects.

Define Performance Indicators, Targets & Milestones:

BEC mapping accurate to 1:50 000 scale for entire region (TSA and TFL) by March 2003.

First iteration PEM for entire region March 2004.

PEM inaccuracy analysis report for an exisiting PEM (potentially IFPA). March 2003

Detailed PEM accuracy assessments March 2003

ESSFwm, ICHdw, ICHwk1 revised classifications March 2005

Describe Relationship to Other SSFM Knowledge Strategies (if applicable):

Linked to SSFM#1,2,3,4,and 5. Components of the spatial analysis relies on using BEC and site series mapping as an input. Structural attribute definitions of old growth are derived at the BEC unit level and their application is based on accurate assessment of BEC. Both Caribou and ungulate winter range issues contain interpretations based on BEC so that accurate BEC information will affect these issues.

Cross Reference to Management Unit Activities (when complete):

Identify the activities to be undertaken down to the management unit level.

TEMPLATE 3: Activities

SSFM Issue #:7	Activity: Large scale BEC mapping for Boundary and Invermere	Activity #: 7.1

Summary:

Ground and aerial transects of entire District outside of areas that have accurate linework will be conducted. Digital mapping to provincial standards will be provided. Concurrently PEM validation data will be collected.

Status:

Existing

Objectives:

1:50 000 scale BEC maps for entire region to support management decision tools.

Describe Tasks, Deliverables, Targets and Milestones:

By March 2003 all of region will have large scale BEC mapping.

Cost Sharing:

Significant in-kind contribution from MoF. Present year funding from mix of small business and licensee MYA funds.

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Partnerships:

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
~$34k	01/02	$50k						2

TEMPLATE 3: Activities

SSFM Issue #:7	Activity: PEM/TEM	Activity #: 7.2

Summary:

Site series mapping for entire region of sufficient accuracy to utilise for site index adjustments.

Status:

Existing

Objectives:

Site series mapping to support management decision tools with known accuracy.

Describe Tasks, Deliverables, Targets and Milestones:

Gap analysis

Report on analysis of source of PEM inaccuracies , March 2003

Detailed accuracy assessments on two major PEM projects March 2004

1st iteration regional PEM , March 2003

2nd iteration regional PEM, March 2004

Accuracy assessment on regional PEM, March 2005

Cost Sharing:

Significant in-kind contribution from MoF.

Partnerships:

MELP, IFPA

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
		$175k	$300k	$75k				3

TEMPLATE 3: Activities

SSFM Issue #:7	Activity: Improve weak BEC site series classifications	Activity #: 7.3

Summary:

Gather existing data, collect new data if needed, and prepare new classifications.

Status:

New

Objectives:

Site series classifications to better describe ecosystems found in the field. If site series classifications weak interpretation of PEM mapping will be questionable.

Describe Tasks, Deliverables, Targets and Milestones:

Report on unutilised data sources and need for additional data, March 2003;

ESSFwm classification work complete, March 2004

ICHwk1 and ICHdw classification work March 2005

Cost Sharing:

Significant in-kind contribution from MoF.

Partnerships:

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
		$10k	$30k	$30k			$70k	3

TEMPLATE 3: Activities

SSFM Issue #:7	Activity: Improved Site Productivity Estimation – SIBEC	Activity #: 7.4

Summary:

Reinforce the existing Site Index – BEC (SIBEC) database for the Nelson Region TSAs to:

1) improve site productivity estimates for post-harvest regenerated (PHR) stands within the TSR
2) support better stand-level management and investment decisions

This project is dependent on completion of PEM/TEM mapping for spatial linkage to the inventory within the TSR.

Status:

New

Objectives:

Affect a positive shift in productivity expectations for PHR stands by replacing the inventory-based estimates of site index currently used in TSR for PHR stands with ecologically-based (SIBEC) estimates, which are more representative of expected PHR productivity. This in turn will have positive effects on TSR AACs through increased growth and yield expectations, expansion of the productive forest area, and helping to ameliorate green-up and adjacency constraints.

Describe Tasks, Deliverables, Targets and Milestones:

Pinpoint weaknesses in existing regional SIBEC data;
complete supplementary data collection within the ICHmw2 and ICHdw, March 2003

Complete supplementary data collection in the ICHwk and MSdk, March 2004

Complete supplementary data collection in the remaining subzones, March 2005

Cost Sharing:

Significant in-kind contribution from MoF (Branch, Region, Districts) and licensees.

Partnerships:

Southern Interior Growth & Yield Cooperative (representing 20 licensees + MoF)

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
		$75k	$75k	$75k			$225k	3

TEMPLATE 1: Key Regional SSFM Issues

SSFM Issue #: 8	Title: Fisheries and Species Specific Information

Overview Description of the Regional Strategic Issue:

Fisheries information is required to address many issues surrounding management of aquatic resources, operational and strategic forest development, Timber Supply Review (TSR), certification, Local Area Agreements (LAA) and non-timber resource activities. Currently, in the Kootenay Region, areas still exist where little or no fisheries information exists. This lack of information can lead to improper management and development decisions in an area, thus resulting in negative impacts to fish and fish habitat.

Relationship to Sustainable Forest Management:

i. **The maintenance of environmental values**
Areas where fisheries information is lacking could result in impacts to sustainable and viable aquatic ecosystems. Lake Creek, which contains a unique population of bull trout, and the middle fork of White River, which was found to contain critical spawning habitat, are two examples of what our research has revealed. It is important to know and understand present fish populations, behaviour, numbers, and habitat availability and usage now and in the future so that it can be maintained and protected. Information can also be used to help direct future Enhanced Environmental Value (EEV) work and assist in making proper resource management decisions.

ii. **The sustainable use of timber resources**
The availability of timber is constantly hampered by lack of fisheries information. Absence or inaccurate information regarding fish populations in streams can affect access to timber, delay development, possibly reduce available timber, and cause improper use of culverts and bridges.

iii. **The sustainable use of non-timber resources**
Fisheries information collected plays an important part in current management of Freshwater Fishing regulations and fisheries management for the region. The identification of important stocks and habitats results in changes to regulations, which results in better protection and management of fish species. To maintain healthy and sustainable fish populations, fisheries information is crucial to meet the needs of recreational, commercial and aboriginal fisheries in the region. In addition, fisheries information also plays an important role in other non-timber resources such as mining, gas and hydro development.

Relationship to Strategic Resource Plans and Decisions:

i. **Strategic Decisions**
TSR reports for many Timber Supply Areas have identified a lack of fisheries information in the analysis. Currently, the only fisheries related information that the TSR contains is stream classification. In most cases, the stream classifications in the TSR reports are based on a 20% gradient cut-off. The use of actual fisheries inventory distribution data and the use of fisheries habitat models will provide more reasonable and accurate predictions for the TSR. There are also other aspects of the TSR that have been lacking such as more specific stream classifications, the identification of high value fish streams and identification of temperature sensitive streams (Timber Harvesting Practices Regulation 22(1)).

ii. **Strategic Resource Plans**

According to Identified Wildlife Management Strategy, bull trout must be addressed at the forest level. In the document, management considerations are made at Landscape Unit planning level, but it is dependent on accurate fish and fish habitat data. In areas where bull trout populations are at risk, it is recommended that "the temporal and spatial layout of cutblocks; hydrologic, green-up and recovery standards; and road layout and design must be considered". KBLUP contains the following statements: "Protect and conserve aquatic ecosystems", "Protect, conserve, and reduce risks to rare, threatened and endangered terrestrial and aquatic species" and finally, "Ensure the sustainability of fish species diversity and populations, especially wild fish stocks". These objectives can't be met with the limited data presently available. In addition, the collection of fisheries data will increase the capacity of the BC forest sector to meet some of the challenges of certification (CSA, FSC) and also contribute crucial data towards watershed restoration planning exercises. The SSFM objective to "conserve biological diversity" will be met through the activities outline in this document.

Cross Reference to Management Unit Issues (if applicable):

TEMPLATE 2: Knowledge Strategies

SSFM Issue #: 8	Title: Fisheries and Species Specific Information

Overview Description of the Knowledge Strategy:

The knowledge strategy is meant to increase available fisheries information by combining existing data (e.g., fish habitat modelling) and collecting new data (e.g., reconnaissance and species specific – telemetry, fish fences, redd counts, etc.) to meet the provincial ecological goals of FRBC, MoF, SRM and WLAP. Documenting and mapping important fish and fish habitat must occur (e.g., bull trout redd maps for Wigwam and White rivers), so resource managers can make sound, reasonable decisions based on the best available data. Provincial standards currently exist for the collection of new data as well as the use of existing data.

Status of Existing Knowledge:

Organization, synthesis and analysis:

Tools and standards have already been generated for the collection and analysis of fish and fish habitat inventory data (e.g., FDIS, FHAT20, RIC manuals, etc.).

Inventory:

- More than half of the region has been surveyed using a Reconnaissance 1:20k Fish and Fish Habitat Inventory.
- Fish habitat modelling (FHAT20) is currently being tested in the Arrow TSA and depending on the results, will be expanded to other areas in the Kootenay Region.
- Species specific telemetry projects have started in some high priority areas such as the Upper Kootenay River watershed, Wigwam River, and Revelstoke Reservoir watershed to obtain critical habitat information.
- Other species specific assessment work such as redd counts, spawner counts, fish fences, snorkel surveys have occurred or are done yearly on the Wigwam River and the majority of kokanee spawning systems.

Extension:

Presentation of fisheries data usually follows Resource Inventory Committee (RIC) standards so it is consistent throughout the province making it easy for resource users to access and utilize the data collected. Fisheries information is provided to industry, government, and the public via the internet. The information will also provide input for broader scope modelling (e.g. spatial analysis).

Research:

Research has currently taken the form of improving and refining current inventory standards and models.

Monitoring:

Currently, monitoring of fish stocks and fish habitat is limited to kokanee and some unique stocks/species such as Gerrard rainbow and Wigwam River bull trout.

Describe the Required Knowledge-Building Activities in these Areas (as applicable):

Organization, Synthesis, Analysis:

The regional Fisheries Inventory Specialist will direct fisheries activities with help from regional fish biologists to ensure all provincial standards are met or exceeded. In addition, Fisheries Inventory Headquarters' staff will aid in the synthesis and analysis of all fisheries data.

Resource Inventory:
To respond to the Kootenay Region fish and fish habitat issues, the following activities must occur:

- Continuation of current Reconnaissance 1:20k Fish and Fish Habitat Inventory.
- Depending on the results of the fish habitat model (FHAT20) currently being tested in the Arrow TSA, it could be expanded other areas of the Kootenay Region.
- FHAT20 model will be used in areas lacking fisheries data or where Reconnaissance 1:20k Inventories have major fisheries gaps.
- For the FHAT20 model to occur a Phase 1-3 Reconnaissance 1:20k Inventory has to be completed.
- Species-specific telemetry projects are lacking in the Upper Columbia River, Slocan Lake Watershed, Kootenay Lake Watershed, White River, Skookumchuck River and Upper Elk River (a detailed priority list will be provided at a later date).
- Other species specific assessment work such as redd counts and fish fences is lacking from systems like the White River, Upper Duncan River system and Slocan River (a detailed priority list will be provided at a later date).

Extension:
Presentation of fisheries data usually follows RIC standards and can easily be adapted to meet specific user needs. In addition, it is a provincial and regional initiative to have data available through provincial and regional internet sites.

Research:
Future research will continue improving and refining current inventory standards and models so the quality of data obtained will be improved, more cost effective and "user friendly". In addition, research will identify gaps in fisheries data and verify model predictions. Most of this activity is lead by headquarters staff.

Monitoring:

- In order to meet recommendations outlined in KBLUP, the focus will be on collecting information to help resource managers make and analyze decisions and land-use activities which were implemented to protect or conserve important fish and fish habitat. A few of the monitoring activities are yearly redd counts, snorkel surveys and fish fences. Some of the high priority fisheries systems for which monitoring will be recommended are: White, Skoomchuck, St. Mary, Midge, Cooper, Salmo, Akolkolex, Jordan, Upper Duncan and Slocan (a detailed priority list can be provided at a later date). Monitoring could also be tied more closely to the EEV projects to help determine the effectiveness of instream works.

Define Performance Indicators, Targets & Milestones:

- Reconnaissance inventories should be completed for the entire region by year 2004. For the information to be used by resource managers, the selection of watersheds for inventory must stay ahead of the actual development. This can be accomplished by working closely with forest Licensees.
- Fisheries models (FHAT20) completed for the entire region by 2006. Arrow TSA should be completed by February 2002. As modelling information is obtained it will be supplied to the TSR.
- By2005, species specific information for high priority species will be completed. Watersheds and species will be prioritised and staggered over a 4-year period. Resource managers will use the information as it is obtained and incorporate it into the proper planning documents.

Describe Relationship to Other SSFM Knowledge Strategies (if applicable):

Fisheries inventory information is used by EEV program in setting priority areas, as it provides fish species composition, relative abundance and some physical characteristics (e.g. reach breaks, gradient, etc). The wildlife program uses some of the physical information collected for project work related to frogs and salamanders (e.g. reach breaks, gradients, barriers, etc.,) and may even be expanded to work with other species such as the Harlequin duck. Inventory information will also be used in the spatial analysis.

Cross Reference to Management Unit Activities (when complete):

TEMPLATE 3: Activities

SSFM Issue #: 8	Activity: Reconnaissance (1:20 000) Fish and Fish Habitat Inventory	Activity #: 8.1

Summary:

Reconnaissance (1:20 000) Fish and Fish Habitat Inventory (FFHI) of selected watersheds within the Kootenay Region. This activity is designed to fill fisheries distribution gaps in forest development plans, TSR, non-timber resources and regional fisheries plans and regulations. The area to be covered is approximately 40% of the region where fisheries information is lacking.

Status:

Existing. Approximately, 60% of the region has been surveyed.

Objectives:

The objective of Reconnaissance Inventory is to fill current fisheries knowledge gaps in resource development plans, thus providing resource managers with the proper information to make informed decisions to protect fish and fish habitat.

Tasks, Deliverables, Targets & Milestones:

	Target Dates:
Prioritize remaining watersheds within the Kootenay Region for 1:20 000 FFHI's.	*September 31, 2001*
Conduct FFHI Phase 1-3 (office exercise) for areas where Phase 4-6 will occur and where FHAT20 modelling will occur.	*March 31, 2003*
Conduct FFHI Phase 4-6 (field data collection, data analysis and report production) on remaining uninventoried priority drainage's within the region.	*March 31, 2005*

Cost Sharing:

Fisheries headquarters staff will continue to provide technical support and on-going data repository services. Regional fisheries staff will also assist in any day-to- day technical support.

Partnerships:

Potential partnerships exist with Habitat Conservation Trust Fund (HCTF), Ministry of Sustainable Resource Management, Ministry of Water, Land and Air Protection and Corporate Resource Inventory Initiative (CRII).

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
$5,000k	6	500k	400k	300k	150k	0	1,350k	4+

TEMPLATE 3: Activities

SSFM Issue #: 8	Activity: Fish and Fish Habitat Modelling	Activity #: 8.2

Summary:

Use a Resource Inventory Committee (RIC) designed Fish Habitat Assessment Tool (FHAT20) to model fish distribution and fish habitat capability in watersheds and management areas. The FHAT20 will be used in areas where Phase 4-6 Reconnaissance Inventories have not occurred, and where fisheries holes currently exist in Reconnaissance Level Inventories. The model will also be used in areas where amounts of riparian buffer zones within a watershed is needed for TSR purposes, fish abundance numbers and habitat predictions for resource manager. The model can also be used in the creation of Local Area Agreements (LAA) by providing detailed habitat parameters on presence/absence of fish that can be used in adjacent watersheds. If the modelling is occurring over a very large area (e.g. Arrow TSA), it will direct future forest licensee field inventory work (where statistically probability of the accuracy is low).

Status:

Arrow IFPA is currently testing the FHAT20; thus this is an existing project for the region but a new project for FRBC. Unsure of how many areas will be modelled but it will be dependent on how well the current IFPA project works. If loading data becomes simplified all Reconnaissance Level inventory data can be loaded at minimal cost, thus improving modelling predictions in areas lacking fisheries information.

Objectives:

The objective of the 'Fish and Fish Habitat Modelling' activity is to provide statistically valid predictions of fish and fish habitat distribution, as well as fish habitat capability over entire management areas to be used in TSR and LAAs. The model will be used where the Reconnaissance Inventory Phase 4-6 has not occurred, or is inadequate and/or other detailed prediction information is needed. Adjacent watersheds that have been inventoried (Phase 1-6) will also be included, as it will increase the accuracy of predicting presence/absence and habitat characteristics for watersheds that lack information. The model might even be used as a tool to manage stream classification for Forest Districts, as this is not currently being done. This of course will have to be tested and hopefully the IFPA project will provide us with some detail regarding this matter.

Tasks, Deliverables, Targets & Milestones:

	Target Dates:
Prioritise watersheds that require fisheries inventory information within the Kootenay Region for modelling and ensure that the area has adjacent watersheds where Reconnaissance Inventory (Phase 1-6) work has been completed, thus providing the model data to model with.	*January 15, 2002*
Assemble existing electronic databases and mapping products from 25% of completed FFHI activities along with adjacent areas lacking fisheries information within the Kootenay Region into the FHAT20 model format. Model will give fish and fish habitat predictions and map results of.	*March 31, 2003*
Assemble existing electronic databases and mapping products from 75% of completed FFHI activities with adjacent areas lacking fisheries information within the Kootenay Region into the FHAT20 model format.	*March 31, 2005*

Cost Sharing:

Ministry of Sustainable Resource Management and Ministry of Water, Land and Air Protection. Fisheries Headquarters staff will continue to provide technical support and on-going data repository services. Regional fisheries and habitat staff will also assist in any day to day technical support in setting parameters for modelling.

Partnerships:

Potential partnerships exist with IFPA.

Investment to date		**Investment Required**						**Total Years to complete**
$$	**Years**	**$$** 2002/03	**$$** 2003/04	**$$** 2004/05	**$$** 2005/06	**$$** 2006/07	**$$** Total	
0		50k	75k	100k	75k	50k	350k	5

TEMPLATE 3: Activities

SSFM Issue #: 8	Activity: Species and Stock Specific Fisheries Inventory	Activity #: 8.3

Summary:

The purpose of the Species and Stock Specific Fish Inventory activities is to fill knowledge gaps related to the behaviour, critical habitat requirements, distribution, abundance, and current status of important fish stocks. Species specific information will provide more detail as to the current land use strategies and land management activities, which will in turn, allow the critical habitat of regionally important fish species to be preserved and protected.

Status:

This is a combination of existing (telemetry) and new strategies (e.g., fish fence, snorkelling, redd counts).

Objectives:

The objective of the Species and Stock Specific Fish Inventory activities is to increase the information on individual fish stocks and critical habitat. Thus, providing detailed information to resource managers to make informed decisions on management activities, conservation, and/or preservation issues. Key habitat information will be obtained such as spawning, overwintering and juvenile rearing areas. This information is then provided to resource uses as it potential can alter their development (e.g. road and bridge construction, block layouts and the basal retention area in the riparian management zone). Information is also provided to resource managers to ensure correct regulations are in place for the area (e.g. fishing regulations, harvest procedures, etc.). This work will also lead to the establishment of Identified Wildlife Areas. Information can be used by EEV in setting priorities and providing them with detailed habitat use, thus directing their instream work. Stock specific work can also monitor population numbers, thus providing resource uses the information to see if development is causing adverse (e.g. road construction) or positive effects (Watershed Restoration Projects) to fish populations. Regional Fisheries staff will also be able to use this data in their day to day activities, setting priorities and fishing regulation.

Tasks, Deliverables, Targets & Milestones:

	Target Dates:
Prioritise important fish stocks and watersheds where accurate information is needed for effective management.	*August 15, 2001*
Decide on the best techniques to accomplish goals.	*September 15, 2001*
Conduct species specific data collection and monitoring in 40% of designated areas	*March 31, 2005*

Cost Sharing:

Potential cost sharing with HCTF, BC Hydro, Bonneville Power Administration, Idaho Fish & Game, Montana Department of Fish, Wildlife and Parks, Washington Department of Fish & Wildlife, Columbia Basin Fish & Wildlife Compensation Program, Fisheries Renewal BC, DFO and CRII.

Partnerships:

HCTF, BC Hydro, Bonneville Power Administration, Idaho Fish & Game, Montana Department of Fish, Wildlife and Parks, Washington Department of Fish & Wildlife, Columbia Basin Fish & Wildlife Compensation Program, Fisheries Renewal BC, DFO and CRII.

Investment to date		**Investment Required**						**Total Years to complete**
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
60k	1	150k	100k	100k	100k	75k	525k	6

TEMPLATE 1: Key Regional SSFM Issues

SSFM Issue #: 9	Title: TSR Inputs for Unstable Terrain

Overview Description of the Regional Strategic Issue:

Identify and evaluate netdowns from TSM's for unstable terrain and avalanche hazards to replace the traditional ESA netdowns for soil and avalanche for TSR's.

Relationship to Sustainable Forest Management:

Timber Resources:
The Chief Forester AAC determinations have indicated an uncertainty associated with the netdowns for unstable terrain and avalanche hazards. This uncertainty reflects on the amount of land base that contributes to the allowable annual cut.

Relationship to Strategic Resource Plans and Decisions:

Strategic Decisions:
The Chief Forester in all of his AAC determinations has indicated the need for an improved netdown for unstable terrain and avalanche hazards for the Nelson Forest Region.
A previously conducted comparison, of unstable terrain shown on terrain stability mapping with Es1's and Es2's on the forest cover data base for the Cranbrook TSR, found that:

- terrain stability mapping gave a more reliable indication of terrain stability constraints than ESA mapping and
- terrain stability mapping resulted in a lower netdown than that calculated from ESA mapping.

The results of this initiative will utilize the existing extensive TSM coverage for incorporation into TSR 3 to improve upon netdown estimates.

Cross Reference to Management Unit Issues (if applicable):

Not applicable

TEMPLATE 2: Knowledge Strategies

SSFM Issue #: 9	Title: TSR Inputs for Unstable Terrain

Overview Description of the Knowledge Strategy:

Need to standardize data and methodology for incorporating operability concerns into next TSR.

Status of Existing Knowledge:

- Terrain mapping files are available, however, they need to be retrieved, translated and corrected due to their existence in a variety of conditions and formats.
- Methodology is in place and has been utilized within the Cranbrook and Arrow TSA's.
- TSR review process includes a netdown for snow avalanche hazard (Ea), however, the Ea designation is rarely used and when mapped is unreliable.

Describe the Required Knowledge-Building Activities in these Areas (as applicable):

This strategy is comprised of the following activities:
Organization:

- The Ministry of Forests Research Geomorphologist will support and assist District implementation of this strategy.

Resource Inventory:

- Similar analysis to the Cranbrook TSA will be conducted for other management units. Involves collection of files, corrections and translations into common formats and the analysis and comparison with forest cover ESAs.

Research:

- Conduct research to develop a method for reconnaissance level avalanche hazard mapping and a suitable netdown procedure.

Define Performance Indicators, Targets & Milestones:

The plan is to complete 1-2 management units per year for the next 3 years as required to stay in sync with upcoming TSRs. Arrow and Cranbrook have been completed.

Describe Relationship to Other SSFM Knowledge Strategies (if applicable):

Not applicable

Cross Reference to Management Unit Activities (when complete):

Identify the activities to be undertaken down to the management unit level.

TEMPLATE 3: Activities

SSFM Issue #: 9	Activity: TSR Inputs for Unstable Terrain	Activity #: 9.1

Summary:

Tasks:

- Use the methods developed in Cranbrook and Arrow Districts, to implement standard methodology across the region for determining more accurate netdowns based upon existing terrain stability mapping.
- Provide a more reliable indication of terrain stability constraint locations and realistic impact for incorporation into upcoming TSR processes.

Area:

All TSA management units except for Arrow and Cranbrook TSAs.

Status:

New

Objectives:

The objective is to provide a more realistic netdown impact for terrain stability and avalanches for upcoming TSRs.

Describe Tasks, Deliverables, Targets and Milestones:

1. Compile and translate GIS files of terrain stability mapping into a common format, and do quality control and correction work on the files as needed. (Suggested order: Columbia (02/03), Invermere (03/04), Boundary (03/04), Kootenay Lake (04/05).)

2. Compare netdowns calculated from terrain stability mapping with those from ESA mapping, and develop algorithms which are suitable for each district.

3. Conduct research into developing a suitable GIS method to do reconnaissance-level avalanche hazard mapping, and develop a way to use this to calculate netdowns..

Cost Sharing:

Significant in kind contributions from MoF staff.

Partnerships:

For avalanche component, partnership with Canadian Avalanche Association, MoTH, and UBC is encouraged, as this work may fit in with an ongoing project to develop national avalanche hazard mapping standards.

Investment to date		Investment Required						Total Years to complete
$$	Years	$$ 2002/03	$$ 2003/04	$$ 2004/05	$$ 2005/06	$$ 2006/07	$$ Total	
0		$40k	$40k	$40k	0	0	$120k	3

TEMPLATE 1: Key Regional SSFM Issues

SSFM Issue #: 10	Title: Grizzly Bear Avalanche Track Classification

Overview Description of the Regional Strategic Issue:

The Kootenay-Boundary Higher Level Plan (HLP) recognizes grizzly bears as a major management concern. Avalanche tracks are important feeding habitat for grizzly bears. We know that the forests adjacent to avalanche tracks require special management in order to minimize the impact of harvesting on the grizzly bears frequenting chutes. Some avalanche tracks are better feeding habitat than others. In order to protect the habitat for bear use and in order to minimize timber impacts, we require that avalanche tracks be classified according to the quality of habitat that they provide for bears. High quality habitats can then be protected more rigorously than lower quality habitats.

Relationship to Sustainable Forest Management:

Describe how the issue relates to reducing risk or uncertainty regarding:

i. The maintenance of environmental values
Grizzly bear habitat is at risk as a result of forest cover removal immediately adjacent to avalanche tracks. This can contribute to negative impacts on grizzly bear populations. By delineating and classifying avalanche tracks as important grizzly bear habitat we will be able to protect the highest quality and most frequently used tracks.

ii. The sustainable use of timber resources
Timber extraction can be allocated as a function of habitat quality. This means that knowledge of the habitat quality of avalanche tracks will support a more stable and predictable timber supply in the long term. In the short term Licensees will know where timber adjacent to avalanche tracks is available for harvest.

iii. The sustainable use of non-timber resources
Grizzly bear populations are important in various recreational activities and are a focal point for conservation efforts in British Columbia and internationally.

Relationship to Strategic Resource Plans and Decisions:

Describe how the issue relates to:

i. Strategic Decisions
Grizzly bear habitat management is an objective of the Kootenay-Boundary HLP. Government decided that the grizzly bear habitat provided by important avalanche tracks must be managed as high quality foraging sites for bears. If this avalanche track classification is not done we will be unable to discern which tracks are the better habitat in a clear defensible manner. The identification of important avalanche tracks will allow for a more accurate determination of available timber to be factored into TSRs.

ii. Strategic Resource Plans
The avalanche track classification will determine how impacts are distributed between districts and landscape units. It will allow LU Planning to integrate grizzly bear habitat management priority areas and allow for timber extraction to be performed with sensitivity towards this resource. This project will also facilitate the implementation of the HLP Objective #5 for grizzly bears. In the absence of this project HLP Objective #5 will not be implemented.

The LU planning which will utilize this information will commence in 2001 and continue at least through 2003.

TEMPLATE 2: Knowledge Strategies

SSFM Issue #: 10	Title: Grizzly Bear Avalanche Track Classification

Overview Description of the Knowledge Strategy:

The approach used for avalanche classification makes use of available satellite imagery and air photo interpretation coupled with fieldwork for verification purposes. The overall strategy is to survey the entire region for distribution of avalanche tracks using remote sensing methodology followed by selection of target areas for more detailed analysis. These target areas will be analyzed using air photo interpretation and field review. Predictive ecosystem and terrestrial ecosystem maps as well as VRI can be used to provide information in the interpretive process.

Status of Existing Knowledge:

Describe the status of existing knowledge in this area in order to provide a rationale for:

i. Organization, synthesis and analysis:

Existing tools and analysis capability for the purpose of delineation and classification include a combination of Landsat 7 imagery, orthophotos, air photos, PEM/TEM, and VRI. A map of the Kootenay region illustrating where knowledge, in terms of avalanche track delineation and classification, presently exists is attached. Some MU's are completed and others have portions done but require additional work. A summary of recent projects related to this submission are listed below.

Ferguson, R. S. and Pope, B. 2001. Inventory and Classification of Avalanche Paths in Tree Farm License #14, Invermere Forest District, British Columbia. Ministry of Environment/FRBC report, BC, Canada.

Misurak, K. and Smith, G. 2000. A Review of Techniques for the Identification and Classification of Avalanche Chutes Using Landsat Imagery and Remote Sensing. Ministry of Environment, BC, Canada.

Mowat, G. 2000. Avalanche chute mapping using air photos: mapping and rating avalanche chutes for grizzly bears in the Kootenay Region of British Columbia. Mowat, G. and Ramcharita, R. 1999. A Review of Grizzly Bear Habitat Use and Habitat Management Options for the Kootenay Region of British Columbia. Ministry Of Environment, Lands & Parks report.

Quinn, M.S. and Phillips, J. 2000. Avalanche paths in TFL 14: Inventory, Description, Classification and Management. Ministry of Environment/FRBC report, BC, Canada.

ii. Inventory: The existing inventory is depicted on the attached map which also identifies the gaps (areas still needing avalanche track delineation/classification).

iii. Extension and Research: Several pilot projects initially used approaches that were somewhat different that the final approach settled on. These projects were upgraded to correlate with the final approach. The end product for all projects is a map of avalanche tracks and, for some areas that have been completed, areas a ranking in terms of importance. Avalanche classification reports are available at: WEBSITE. ARCINFO files of products to date are housed in the regional GIS.

Describe the Required Knowledge-Building Activities in these Areas (as applicable):

Organization, Synthesis, Analysis: Complete Gap Analysis of areas still requiring delineation and/or classification. This is being done by the Ministry of Sustainable Resource Management GIS centre.

Resource Inventory: Using a combination of satellite imagery, ortho and air photography and experts local knowledge complete avalanche track delineation and classification in gaps that have been identified. Review of products by Forest Ecosystem Specialists and Forest Planners, and local experts.

Extension and research: Confirm that all available products are up to a minimal standard and provide similar information to one another. Maps produced with tracks delineated and classified will be provided to Licensees and used for strategic planning (LU Planning).

Monitoring: Institute a formal monitoring program in conjunction with incidental monitoring for grizzly bear use of avalanche tracks to allow for fine-tuning of mapping. Formal monitoring will be done under contract and will consist of assessing grizzly bear use of randomly selected tracks which have been deemed to be important. Incidental monitoring will be set up with WLAP and MOF staff and will include avalanche tracks that were not deemed to be important for comparative purposes.

Define Performance Indicators, Targets & Milestones:

September 7, 2001 - In partnership with LUCO let a contract to:

a) complete avalanche track delineation using Landsat 7 and ortho-photos.

b) solicit expert information from a variety of sources including Conservation Association/Rod and Gun Club representatives, Guide Outfitters and others expected to have valuable information.

October 31, 2001 – Contract complete and product delivered. Applicable information will be made available for initial Landscape Unit planning.

September 2001 (if possible) or April 15, 2002 (if necessary) - In partnership with Licensees and through the RMP, let a contract to complete the classification of avalanche tracks focussing on highest priority areas initially. Highest priority areas to be identified though expert information and the results of all grizzly bear research to date (DNA sampling etc.).

March 31, 2002 or October 31, 2002 (depending on initiation date) - Completion of contract and delivery of product coinciding with Landscape Unit Planning already in progress. Incorporation of information into LU plans and translation to operational proposals.

April 1, 2002 - where avalanche track classification has been completed, commence formal monitoring and continue incidental monitoring of grizzly bear use of avalanche tracks. The primary method of monitoring will be evaluation of bear use at spring feeding sites.

October 31, 2002 – October 31, 2003 - Revise mapping as necessary.

Describe Relationship to Other SSFM Knowledge Strategies (if applicable):

Grizzly Bear population analyses
Pilot Avalanche Chute Classification Studies
VRI
PEM/TEM
OGMA
Spatial Analysis

TEMPLATE 3: Activities

SSFM Issue #: 10	Activity: Grizzly Bear Avalanche Track Classification	Activity #: 10.1

Summary:

Describe in overview the scope and implementation plans.

i. Overview

a. Identification of grizzly bears as a major issue in the Higher Level Plan (Done)

b. Avalanche tracks recognized as an important habitat feature that could be mapped and classified (Done)

c. Pilot studies to develop methodology (Done)

d. Adoption of Mowat and Ramcharita method (Done)

e. Gap analysis of region: Regional map of concentration of avalanche tracks, overlay of present projects and planned projects (in progress)

f. Identification of target areas for full implementation.

g. Implementation of Avalanche track classification in target areas.

h. Completion and review of all projects and an overview of project.

i. Use of product in developing strategic plans such that operational plans may be consistent with them.

j. Monitor grizzly bear use of avalanche tracks.

k. Revise mapping as necessary.

ii. overview of geographic area covered

a. see MAP

Status:

Existing. The region has recognized the need for avalanche track classification for several years and developed several pilot studies that now guide this process.

Objectives:

The objective is to map and classify avalanche tracks that are important as grizzly bear habitat.

Describe Tasks, Deliverables, Targets and Milestones:

See Template 2 under "Define Performance Indicators, Targets and Milestones"	

Cost Sharing:

LUCO – 40k during 2001

Partnerships:

LUCO MWLAP

MOF MSRM

CBFWCP

Investment to date		**Investment Required**						**Total Years to complete**
$$	Years	**$$** 2002/03	**$$** 2003/04	**$$** 2004/05	**$$** 2005/06	**$$** 2006/07	**$$** Total	
140k	1997/01	140k classification & 20k monitoring					300k	5+

NOTE: Should SSFM funding be secured for 2001 the classification of avalanche tracks will commence in September 2001 and monitoring could begin in particular MU's where some fall use of tracks is expected.